

**ARIZONA'S
COMPREHENSIVE WILDLIFE CONSERVATION STRATEGY:
STATE OF THE STATE (COMPANION DOCUMENT B)**



Arizona Game and Fish Department
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ARIZONA’S COMPREHENSIVE WILDLIFE CONSERVATION STRATEGY: STATE OF THE STATE (COMPANION DOCUMENT B)

Arizona Game and Fish Department

INTRODUCTION

The Arizona Game and Fish Commission (Commission) and Department (Department) serve the people of Arizona as steward of the State's wildlife. These resources are a public trust, managed for the benefit of present and future generations. Under Arizona Revised Statutes Title 17, the Commission and Department are vested with the authority to manage the State’s wildlife.

As a funding requirement of the State Wildlife Grants (SWG) program (TWW 2003a), Congress charged each of the 56 States and Territories (hereafter referred to as ‘States’) with developing a statewide “Comprehensive Wildlife Conservation Strategy” (CWCS). These efforts are being coordinated through the Teaming With Wildlife (TWW) Committee and the International Association of Fish and Wildlife Agencies at a national level. To remain eligible for SWG funding, State strategies need to be submitted to the National Advisory Acceptance Team by October 1, 2005, for evaluation and approval.

This companion document provides background narratives on Arizona’s CWCS ecoregions, vegetative communities, riparian/aquatic systems, species of conservation priority, and important stressors/threats to wildlife and wildlife habitats.

ARIZONA’S WILDLIFE AND LANDSCAPES

The State of Arizona contains approximately 73 million acres with a large range of topographic and geologic diversity. Elevations in Arizona range from about 75 ft above sea level (near Yuma) up to 12,643 feet at its highest point (San Francisco Peaks near Flagstaff). Generally, elevation increases moving from west to east and from south to north. Precipitation ranges from less than 3 inches to over 30 inches per year depending on elevation and location. Most precipitation in Arizona comes from summer monsoons and winter storms carrying moisture from the Pacific Ocean. The Sonoran Desert in the southwest corner of the State typically receives near equal amounts of summer and winter rain. Winter rain or snow dominates more in northern portions of the State, while summer rain dominates more in the southern portion.

Variability in climates, elevations, landforms, vegetative communities, watercourses, and soil types create many different environments throughout Arizona. These environments range through all 6 of Merriam’s life-zones (Betancourt 1990; Brown 1994)—from the hot, dry deserts of southern Arizona through grasslands and woodlands in mid-elevations, to the cold, moist, montane and alpine forest environments in the higher elevations. In addition, isolated mountains throughout Arizona, known as “sky islands” (Marshall 1957), create steep elevation gradients assuring rapid environmental changes over very short distances.

Throughout Arizona, aquatic systems and associated riparian areas play a major role in maintaining biodiversity. Riparian communities along the aquatic habitat provide migratory birds and pollinating insects and bats with vital travel corridors for their migrations between North and South America. The State is home to a number of large rivers. The Colorado River runs through the Grand Canyon and forms the western boundary of Arizona. The Gila, Salt, and Verde rivers drain the northern-central portion of Arizona, and carry water to reservoirs supporting the cities in central and southern Arizona. Many smaller creeks and tributaries have perennial or intermittent flow. Springs, cienegas (marshes), and stock tanks provide valuable aquatic and riparian habitat and water for wildlife use. All in all, the complexity of the Arizona landscape gives rise to a diversity of habitats that support diverse wildlife communities.

Arizona ranks third in the nation for the number of native bird species, second for reptiles, fifth for mammals, and eighth for overall vertebrate animal diversity (Stein and others 2000). Wildlife that reside in or migrate through Arizona include: 31 species of amphibians, 396 species of birds (not including accidental and casual migrants), 72 species of fish, 166 species of mammals, 143 species of reptiles, and over 20,000 species of macro-invertebrates (note: the Department has management authority over all vertebrate species and crustaceans and mollusks). Each of these species has dependent habitat needs—shelter or cover from the elements and predators, available food and water, and materials and locations for nesting or raising young. Some species require very specific conditions that exist in only a few localized sites (for example, springsnails with narrow tolerances of spring water quality and substrates to forage on). Other species are more habitat generalists, existing in or ranging across a variety of habitats (for example, coyotes which are found statewide). Some wildlife, like migratory birds and bats, change their habitat requirements depending on season or life history stages. Taken all together, Arizona's wildlife depends on many resources at different scales in both space and time.

While Arizona supports a tremendous diversity of wildlife, it faces a variety of unique challenges and opportunities for wildlife conservation. The Department manages only 0.05% of the total area of the State (Table A)—these areas comprise various Commission-owned Wildlife Areas, state fish hatcheries, the Ben Avery Shooting Facility, and administrative offices. The U.S. Forest Service (USFS), Bureau of Land Management (BLM), National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), and Department of Defense (DOD) manage the largest portion (42%) of lands in Arizona. Most of these federal lands are unlikely to be subdivided and developed for commercial or residential uses. Most areas within USFS and BLM jurisdiction allow 'multiple-use' activities associated with recreational and economic pursuits. Federal agencies work under a variety of laws and policies in which conservation of wildlife is mandated. The Department works with these federal partners on land and water management projects on lands that they administer.

Tribal governments manage an additional 28% of land in Arizona. Each tribe is a sovereign nation, and thus is not subject to State jurisdictions. Most tribes maintain their own wildlife management departments. The Department continues to develop working relationships with the individual tribes to facilitate conservation of wildlife across the landscapes in Arizona.

The Arizona State Land Department (ASLD) manages 13% of the lands in Arizona. Under state law, these 'State Trust' lands are managed, leased, sold, and traded to provide revenue to support education in Arizona. These lands are primarily leased for commercial purposes or occasionally sold for private development.

Private lands make up 18% of Arizona's total area. In various locations around the State, concentrations of private land occur around various river corridors, watersheds, and other locations with important resources for wildlife. Because aquatic and riparian habitats are critical to many of Arizona's wildlife, private landowners have a large role in helping conserve wildlife populations.

Table A. Land Ownership in 2005 by Ecoregion in Arizona (based on ASLD GIS data).								
Percentage in each Ecoregion								
Land Owner		AHN	AHS	AZNM	CP	MD	SD	Total
Federal	Bureau of Land Management	1.338	1.288	0.036	3.556	2.395	8.021	16.63
	Bureau of Reclamation	0	0	0	0	0.017	0.148	0.17
	National Forests	5.968	2.247	4.709	1.179	0	1.191	15.29
	National Parks and Monuments	0.001	0.097	0.033	2.180	0.715	0.496	3.52
	Military	0.000	0.147	0.036	0	0	3.739	3.92
	Wildlife Refuges	0	0.159	0	0	0.046	2.138	2.34
Total Federal Lands		7.310	3.940	4.810	6.920	3.170	15.730	41.87
State of Arizona	AZ Game and Fish Dept	0.002	0.006	0.012	0.012	0.002	0.014	0.05
	State Trust	2.639	3.741	0.726	1.538	0.161	3.950	12.75
Total State Lands		2.640	3.750	0.740	1.550	0.170	4.150	13.00
Tribal Governments		3.569	0.376	1.726	16.489	0.032	5.380	27.57
Counties and Municipalities		0.005	0.001	0.001	0.002	0.005	0.201	0.22
Private		3.980	3.361	0.976	2.929	0.966	5.317	17.53
Total		17.50	11.42	8.26	27.88	4.34	30.60	100%

Arizona shares over 350 miles of border with Mexico. Many wildlife populations have annual migrations or movement patterns that cross these borderlands. The Department works closely with Mexican authorities and other partners through various committees, teams, and workgroups to assure the continued conservation of many borderland species. The stressors posed by illegal immigration traffic through the borderlands as well as homeland security border activities will require politically astute conservation strategies to address the needs of many stakeholders and affected wildlife.

STATUS OF ARIZONA'S LANDSCAPES (ELEMENT 2)

Ecoregions are defined as large areas of land and water—on the scale of tens of millions of acres—that are characterized by distinct plant communities, species, and environmental conditions such as climate and landforms. The Nature Conservancy Ecoregions were modified for Arizona's

CWCS landscape classification: Apache Highlands (AHN and AHS), Arizona-New Mexico Mountains (AZNM), Colorado Plateau (CP), Mojave Desert (MD), and Sonoran Desert (SD). For the CWCS, the Apache Highlands Ecoregion was split into northern and southern ecoregions at the northern-most extent of the Chihuahuan Desertscrub landscapes along the eastern border of Arizona. Landscape composition of each ecoregion is summarized in Table B.

Table B. Percentage of Ecoregion Occupied by Each Landscape (based on ASLD GIS data).							
Community Type	Landscape	Percentage in each Ecoregion					
		AHN	AHS	AZNM	CP	MD	SD
Desertscrub	Arizona Upland Sonoran Desertscrub	0.39	0	0	0	1.33	46.68
	Chihuahuan Desertscrub	0.01	15.32	0	0	0	0
	Great Basin Desertscrub	0.34	0	0.61	27.49	0.85	0
	Lower Colorado River Sonoran Desertscrub	0	0	0	0	4.80	52.37
	Mohave Desertscrub	0.36	0	0	3.71	82.18	0.63
Desertscrub Total		1.10	15.32	0.61	31.20	89.16	99.68
Grasslands	Plains and Great Basin Grassland	13.91	1.96	13.04	34.96	0	0
	Semidesert Grassland	14.32	60.96	0	0	2.88	0.20
	Subalpine Grassland	0	0	0.88	0.04	0	0
Grassland Total		28.23	62.92	13.92	35.00	2.88	0.20
Woodlands	Alpine Tundra	0	0	0.02	0	0	0
	Great Basin Conifer Woodland	37.70	0.23	31.72	30.72	5.45	0.03
	Interior Chaparral	21.82	2.06	0.86	0.05	2.41	0.10
	Madrean Evergreen Woodland	2.93	18.13	0.18	0	0	0
	Petran Montane Conifer Forest	8.22	1.29	50.73	2.44	0.10	0
	Petran Subalpine Conifer Forest	0	0.05	1.96	0.58	0	0
Woodlands Total		70.67	21.76	85.47	33.79	7.96	0.13

APACHE HIGHLANDS NORTH

The Apache Highlands North Ecoregion spans 9.4 million acres in Arizona, largely comprised of grasslands, chaparral, and pinyon/juniper woodlands (Marshall and others 2004). Elevation ranges from about 2100 to 8800 feet, averaging about 4950 feet. Precipitation ranges from 10 to 18 inches in this ecoregion, with approximately equal portions falling in winter and summer. It contains a variety of landforms, including broad flat valleys, rolling hills, and steep mountains, including the isolated heights of the Hualapai Mountains, a "sky-island" landform similar to those of the Apache Highlands South. Precipitation in these "sky-island" areas varies from 11 to 30 inches per year, with more precipitation at higher elevations and with slightly more falling in summer than winter.

The dominant characteristic of the Apache Highlands North is the highly dissected nature of the landform. With the Mogollon Rim defining the northern boundary of the eastern part of this ecoregion, the landforms consist in large part of canyons, valleys and the intervening small mountain ranges, ridges and plateaus. The northwestern part of this ecoregion is dominated by relative flatter and more extensive plateaus at somewhat higher elevation than the remainder of the ecoregion. This plateau country breaks into similarly highly dissected drainages and small mountain ranges towards the south.

The Apache Highlands North is transitional in nature throughout its extent. Dramatic local differences in elevation, slope and aspect may result in striking variety in vegetation type and associated wildlife. Within a single square mile in this ecoregion it would not be unusual to encounter Great Basin Coniferous Woodland, Montane Coniferous Woodland, Chaparral, and Semidesert Grassland, as well as associated riparian and aquatic habitats.

The Apache Highlands North is a relatively well-watered portion of the State. The higher elevations to the north receive some of the most significant precipitation in the State, and much of that runoff flows through this ecoregion. The Salt River forms a portion of the southern boundary of this ecoregion and the Verde River bisects it. Other significant drainages include upper portions of the Big Sandy and Santa Maria rivers; the Agua Fria, and New River drainages; the Verde tributaries Sycamore Creek, Oak Creek, Beaver Creek, West Clear Creek, and the East Verde River; the Salt tributaries Tonto Creek, Cherry Creek, Canyon Creek, Cibique Creek, Carrizo Creek, and the White and Black rivers; and the upper Gila River tributaries Bonita Creek, Eagle Creek and the San Francisco River. Many of the smaller tributaries of these named systems have perennial or intermittent flow, providing aquatic habitat, support for riparian communities and water for wildlife consumption. Additionally, private landowners and the livestock industry have constructed numerous water impoundments across the breadth of this ecoregion that are of value to wildlife. The western third of the ecoregion is less well-watered. Significant portions of this western portion are covered by sagebrush and other Great Basin desert scrub species with Great Basin conifer forest vegetation occurring in the somewhat higher elevations with thinner soils and broken, rocky terrain. Significant canyon systems drain much of the north-central portion into the Colorado River through Cataract Canyon, with the north-western zone draining south and west to the Verde River through Big Chino and its tributaries.

Land management responsibility in the Apache Highlands North is predominantly tribal or federal in the eastern two-thirds of the ecoregion. The White Mountain Apache and San Carlos Apache Indian reservations lie at the eastern-most portion of the ecoregion. West of these, the USFS (Apache-Sitgreaves, Coconino, Tonto and Prescott national forests) is the principal land manager. Only small areas of private land are found within these zones, although the private lands are often some of the most well-watered and ecologically significant. Farther west in the ecoregion large areas of Arizona State Trust lands are present, often interspersed with private land in a checkerboard pattern. These offer a challenge to management since access and control are often limited. The BLM also manages a significant portion of lands in the western part of the ecoregion, and many BLM areas are similarly checkerboarded with State Trust and private land.

Due to the highly dissected nature of its topography, the more rugged areas of the Apache Highlands North are relatively not heavily influenced by human population centers. Major communities in the ecoregion include Payson, Camp Verde, Cottonwood, Prescott, Prescott Valley, Kingman, Chino Valley, and Globe. Because many of these communities are located in the large valleys of the ecoregion, where the topography is gentle and the soils are deeper, they have had a disproportionate influence on the condition of Plains/Great Basin Grassland landscapes, especially around Prescott, Prescott Valley, Kingman, and Chino Valley.

APACHE HIGHLANDS SOUTH

The Apache Highlands South Ecoregion, including 8.5 million acres in Arizona, is best known among the scientific community for its “sky islands.” Over 20 mountain ranges cloaked in pine-oak woodland and mixed conifer forests rise abruptly from surrounding basins comprised of grassland and desert scrub to form forested islands among a “desert sea” (Marshall 1957; Marshall and others 2004; Warshall 1995). These have also been called the “Madrean archipelago” for their similarity to a chain of islands extending off the “continent” of the Sierra Madre (DeBano and others 1995). The elevation ranges from about 2200 to 10,717 feet, averaging about 4340 feet. Precipitation varies from about 10 to 30 inches per year according to elevation, with slightly more falling in summer than winter.

Because of the variation in elevations as well as the location between the Sierra Madre to the south (Neotropic influence) and the Rocky Mountains to the north (Nearctic influence), an unusually rich fauna and flora exists here (Marshall and others 2004; Warshall 1995). At least 468 bird species (including accidental and casual migrants) have been verified in southeastern Arizona during the past 50 years, along with more than 240 butterfly species (Bailowitz and Brock 1991; Edison and others 1995).

The San Pedro River is a natural perennial river with important wildlife habitat. The ecoregion includes a portion of the upper Gila River from the border with New Mexico to the mouth of the San Francisco River, an effluent-supported portion of the Santa Cruz River north from the Mexican Border, and numerous important riparian streams such as Sonoita Creek and Cienega Creek. Willcox Playa and Whitewater Draw, both ephemeral wetlands, are important for many species of wildlife, particularly sandhill cranes and waterfowl.

The major urban area of southeastern Arizona is Tucson, in the Sonoran Desert Ecoregion, but its growth is encroaching into the adjacent Apache Highlands South Ecoregion. Other communities in the ecoregion are also growing, including Nogales, Douglas, Sierra Vista, Benson, Willcox, Bisbee, Tombstone, Patagonia, Sonoita, Arivaca, Rio Rico, and Oracle.

ARIZONA-NEW MEXICO MOUNTAINS

As its name suggests, the Arizona-New Mexico Mountains Ecoregion includes much of the mountainous terrain in Arizona and New Mexico, as well as a small piece of Texas. It covers more than 6 million acres in Arizona and contains most of the State's conifer forests (TNC 1999). Elevation ranges from about 4000 to 12,643 feet, averaging about 7050 feet. One of the most prominent features of the ecoregion is the Mogollon Rim, an escarpment that traverses nearly 200 miles across central Arizona from just southwest of Flagstaff to the White Mountains of eastern Arizona, and which defines much of the southern edge of the ecoregion. No less dramatic are the San Francisco Peaks near Flagstaff, which may be seen from more than 100 miles away, and Mount Baldy in the White Mountains of eastern Arizona. Annual precipitation varies from 11 to 30 inches, evenly divided between summer and winter. Average temperatures vary seasonally and along elevation gradients, with all of the ecoregion receiving some snowfall.

Vegetative communities found within the Arizona-New Mexico Ecoregion range from high elevation Tundra, atop the San Francisco Peaks, to the Plains and Great Basin Grassland/Desertscrub at the lower most elevations. Over half of the ecoregion is composed of Montane Conifer and Subalpine Conifer vegetative communities. These vegetative communities consist of large conifer trees, predominantly ponderosa pine and spruce/fir forest, as well as aspen.

The Arizona-New Mexico Ecoregion contains the headwaters of the Little Colorado River, the Gila River, and the Verde River, and well as numerous manmade impoundments. These and other aquatic systems and their associated riparian habitat, support a disproportionately high number of wildlife species.

Land management responsibility in the Arizona-New Mexico Ecoregion is predominantly tribal or federal with interspersed State Trust lands. The northeastern portions of the ecoregion, consisting primarily of private and State Trust lands, have a checkerboard landownership pattern that increases the challenge of planning and implementation of a cohesive land management strategy. In this portion of the ecoregion, large parcels of land are being subdivided into smaller "ranchettes," resulting in further fragmentation and loss of habitat.

The major urban area within the ecoregion is the City of Flagstaff in the western portion of the ecoregion, with a population of approximately 61,000. Numerous other small communities including Williams, Show Low, Pinetop-Lakeside, Snowflake, Taylor, Eagar, and Springerville occur throughout the ecoregion. None of these can be considered urban although they are increasing in population as retirees, recreationists, and associated businesses move to the area.

COLORADO PLATEAU

The Colorado Plateau Ecoregion includes portions of Arizona, Utah, Colorado, and New Mexico. The Arizona portion covers 22.9 million acres, dominated by desertscrub and shrublands (CSE and others 2002; Tuhy and others 2002). Elevation ranges from about 1200 to 9200 feet, averaging about 5700 feet. It features extensive plains broken by sheer-walled canyons and buttes, and includes the Grand Canyon. Precipitation ranges from about 5 to 30 inches per year, with a high proportion falling in winter. Average temperatures vary seasonally and along elevation gradients, with all of the ecoregion receiving some snowfall.

Due to the high elevation of most of the ecoregion, the temperature extremes and their influence on vegetative communities can be significant. This, along with the low precipitation received in most seasons, causes very low vegetative diversity in most of the area. Many of the plant communities have also been converted to monotypic stands of desertscrub and woodlands that were previously native grasslands. Soils are very thin and less than fertile due to: lack of vegetative cover; leaching of nutrients by solar radiation, wind, and water action; and a general low potential due to the nature of sandstone substrate.

Vegetative communities at the higher elevations of the Kaibab Plateau and isolated higher elevations of the Arizona Strip consist of large conifer trees, predominantly ponderosa pine and spruce/fir forest, as well as aspen.

The Colorado Plateau Ecoregion is entirely within the Colorado River watershed. Perennial tributaries to the Colorado River include the Paria and Little Colorado rivers, Tapeats, Kanab, and Havasu creeks. While the mainstem of the Colorado River is controlled by a series of dams, the tributaries are all relatively unencumbered by water control structures. Many smaller tributaries in the ecoregion are mainly intermittent. Most of the area within the ecoregion is very arid. Water for wildlife and livestock is supplemented by water developments such as guzzlers, catchments, and spring-fed tanks and troughs.

Most of the land in the Colorado Plateau Ecoregion is federally or tribally owned, and is expected to continue so into the foreseeable future. This factor should help ensure wildlife diversity in the ecoregion by planning and partnering with the federal and tribal landowners is maximized. Acquisition of lands for conservation of wildlife habitat values is less desirable or not a viable alternative in most of the ecoregion, although some limited opportunities do exist around communities in the Little Colorado River valley.

The ecoregion has the highest density of national parks, monuments and recreation areas of anywhere in the United States. This ecoregion contains NPS- and BLM-administered areas such as: the Grand Canyon, Lake Powell, Lake Mead, the Petrified Forest, the Wupatki ruins, Sunset Crater, Walnut Canyon, Grand Canyon-Parashant, Marble Canyon, Paria Canyon-Vermillion Cliffs. Many of these areas and additional parks, monuments, natural and wilderness areas cross state and tribal borders.

The Colorado Plateau Ecoregion in Arizona contains no major urban centers, but numerous rural communities. The largest population centers are Page, Fredonia, Kayenta, Window Rock, Tuba City, Winslow, and Holbrook. Neighboring communities of Kanab and St. George (Utah), Gallup (New Mexico), and Flagstaff are also exerting an influence on the ecoregion.

MOHAVE DESERT

The Mohave Desert Ecoregion is a transitional region situated between the higher and cooler Great Basin Desert to the north and the warmer Sonoran Desert to the south (Lowe 1985). Arizona contains only the eastern edge of the Mohave Desert Ecoregion, with the remainder in California, Nevada, and Utah. Located in the northwest corner of the State, Arizona's portion of the Mohave Desert covers 3.2 million acres and is dominated by Mohave Desertscrub. This habitat type is intermediate between the Great Basin Desertscrub and the Sonoran Desertscrub habitats. Upper and lower Sonoran vegetation types are found along the southwestern border of the ecoregion. It is difficult to distinguish between the Sonoran Desertscrub and the Mohave Desertscrub, since many plant species from both vegetation types are present in the southern portion of the ecoregion. Five other vegetation types are found in the ecoregion, and are typically associated with mountain ranges and higher elevation basins. The primary mountain ranges of the ecoregion are the Virgin, Black, Cerbat, and Mohave.

Elevation ranges from about 450 to over 8000 feet, averaging 2770 feet. This ecoregion features Basin and Range topography, with broad valleys separated by rugged mountain ranges.

Precipitation ranges from about 5 to 11 inches per year, with slightly more winter than summer precipitation.

The Colorado and Virgin rivers are the primary river systems in the ecoregion. The Colorado River has been modified over most of its length with the creation of lakes Mead, Mohave, and Havasu. Recreation activities in the form of boating, fishing, and other water-sports, is prevalent along this entire reach of the Colorado River, especially from Southern California and surrounding population centers. Historically, the Colorado River and its associated wetlands, flood plains, and riparian forests, provided habitat for a diverse array of wildlife species and native fish in this otherwise dry habitat. With the exception of the Havasu National Wildlife Refuge, few of these habitats still exist. The Virgin River and the surrounding riparian zone, which bisect the extreme northwest corner of the ecoregion, are also experiencing an increase in recreational pressures from the growing population centers of St. George, Utah and Mesquite, Nevada.

Land ownership is a mixture of federal, state, and private. Private land is primarily checkerboarded with BLM land, although large blocks are present in the Sacramento Valley and on the south side of the Black Mountains. The entire length of the Colorado River north of Bullhead City is contained within the Lake Mead National Recreation Area. Havasu National Wildlife Refuge, which is administered by the USFWS, has a large section of land north of Lake Havasu City along the Colorado River. Small parcels of State Trust land are scattered throughout the ecoregion.

Major communities in the ecoregion include Lake Havasu City, Bullhead City, Fort Mohave, Golden Valley, Littlefield, and Dolan Springs. With mild winter temperatures and close proximity to recreational opportunities along the Colorado River, this area is experiencing tremendous population growth. Over the past decade, this has been the fastest growing region in Arizona, with a growth rate that is over 3 times the national average (U.S. Census Bureau 2005).

SONORAN DESERT

The Sonoran Desert Ecoregion in Arizona covers 22.3 million acres, and is dominated by desert scrub communities (Marshall and others 2000; Phillips and Comus 2000). Elevation ranges from about 70 to 5900 feet, averaging about 1350 feet. The ecoregion features Basin-and-Range topography, with broad valleys separated by rugged mountain ranges. Annual precipitation in the ecoregion ranges from about 3 to 17 inches, with slightly more annual rainfall within higher elevations inclusions of other vegetation types. Moving from east to west, total precipitation decreases and there is less influence from summer rains.

The most striking feature of this ecoregion is the cactus-dominated vegetation communities, with giant saguaros and chollas being the most conspicuous. Biodiversity of the Sonoran Desert is among the highest of any desert in the world (Phillips and Comus 2000) and can be manifested here in surprising ways. In one of the drier portions of the ecoregion, Rosenstock and others (2004) found over 200 species of native bees, one of the most diverse such communities in North America. In a review of several studies of breeding birds, Nabhan and Holdsworth (1999)

concluded that in terms of breeding bird diversity and productivity, the Sonoran Desert's riparian habitats are among the richest in all of North America.

The primary river systems and riparian areas in the Sonoran Desert Ecoregion include: the lower reaches of the Colorado, Bill Williams, Big Sandy, Santa Maria, Hassayampa, Agua Fria, Gila, Verde, Salt, Santa Cruz, and San Pedro rivers. The eastern edge of the ecoregion contains a number of river impoundment reservoirs: Lake Pleasant, Bartlett, Horshoe, Saguaro, Canyon, Apache, Roosevelt, and San Carlos. Recreation activities in the form of boating, fishing, and other water-sports are prevalent along the Colorado River and the ecoregion's larger reservoirs. Extensive water diversion projects occur in this ecoregion: the Central Arizona Project canal, the Salt River Project network of canals in and around the Phoenix metropolitan area, and the Mohawk-Welton network of canals along the lower Gila River. Along with groundwater sources, these projects divert surface water from the Colorado, Salt, and Gila rivers to support the ecoregion's municipal, industrial, and agricultural water needs.

The scenic desert settings and warm, sunny climate continue to make the Sonoran Desert a favored destination for relocation and retirement. Population of the counties that comprise the Sonoran Desert Ecoregion increased from 1.0 million in 1960 to 4.1 million in 2000 (U.S. Census Bureau 2000). This 300% increase far outpaced the 62% increase recorded for the nation as a whole during the same period (U.S. Census Bureau 2000). Continued increases will create additional direct and indirect stresses on the ecoregion.

Major urban areas are the Phoenix and Tucson metropolitan areas, both of which are rapidly expanding into previously undeveloped desert. Other communities in the ecoregion are also growing rapidly, most notably: Green Valley, Casa Grande, Marana, Sahuarita, Buckeye, Wickenburg, and the Colorado River communities of San Luis, Yuma, and Lake Havasu City.

ARIZONA'S VEGETATIVE COMMUNITIES AND RIPARIAN/AQUATIC SYSTEMS

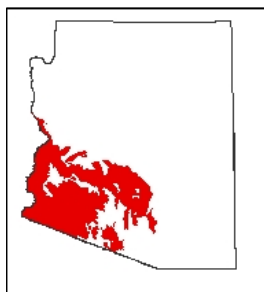
Traditionally, the Department has managed wildlife and evaluated resources at the landscape level (vegetative communities) and below. Brown and Lowe (1974) vegetation communities were used to represent landscapes in the CWCS since this classification is imbedded in most of the commonly used ecoregion and province classifications for Arizona (Table C).

The landscapes represent areas having similar vegetative characteristics but may not be contiguous. These classes represent non-overlapping areas of the state and specific vegetation types. Conditions in these landscapes are diverse and represent a mosaic of patches due to hydrology, disturbance regime, microclimates, topography, and landscapes structures.

Table C. Percentages of Vegetation Community Owned by Different Arizona Land Owners (based on ASLD GIS data). Note: Each row represents 100% of that vegetation type; columns are not additive.

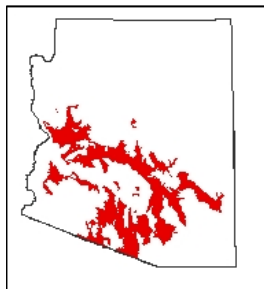
Community Type	Community Description	AZ Game & Fish	Federal	Other	Private	State Trust	Tribal	Sum
Desertscrub	Arizona Upland Sonoran	0.03	43.95	3.84	11.94	16.61	23.62	100%
	Chihuahuan	0	30.58	0.18	25.85	43.39	0	100%
	Great Basin	0.01	20.67	0	5.88	3.49	69.93	100%
	Lwr Colorado R Sonoran	0.06	45.02	10.10	22.54	10.17	12.12	100%
	Mohave	0.03	72.52	0.11	17.41	5.03	4.90	100%
Desertscrub Total		0.04	42.86	4.88	15.84	11.81	24.57	100%
Grasslands	Plains and Great Basin	0.06	11.82	0.02	28.51	15.82	43.77	100%
	Semidesert	0.05	26.31	1.60	33.67	32.68	5.70	100%
	Subalpine	0	85.50	0	0.47	0	14.03	100%
Grasslands Total		0.05	18.11	0.68	30.55	22.77	27.84	100%
Woodlands	Alpine Tundra	0	100.00	0	0	0	0	100%
	Great Basin Conifer	0.07	38.12	0	13.00	7.71	41.10	100%
	Interior Chaparral	0	66.67	0	10.13	15.36	7.84	100%
	Madrean Evergreen	0.06	71.92	0.06	10.36	8.10	9.49	100%
	Montane Conifer	0.07	64.80	0	3.82	1.30	30.01	100%
	Subalpine Conifer	0	70.70	0	0.16	0	29.14	100%
Woodlands Total		0.06	50.51	0.01	10.39	7.39	31.65	100%

DESERTSCRUB



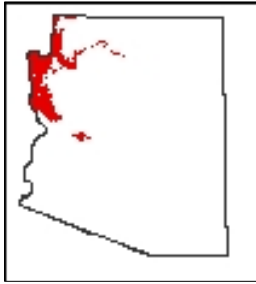
Lowland Sonoran: elevation 100-3000 ft

Vegetation is dominated by low, open stands of creosotebush and bursage. Smaller areas that have low, undrained and salt-affected soils commonly are dominated by saltbush, acacia, and mesquites. Has annual species, sometimes referred to as “ephemerals,” since they grow only after brief moist periods and are short-lived. Other conspicuous species include: desert broom, chuparosa, ocotillo, cholla, ironwood, palo verde, desert willow, and canyon ragweed.



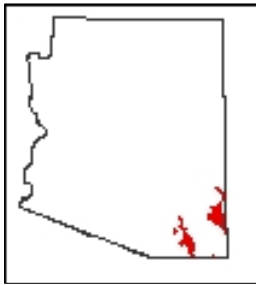
Upland Sonoran: elevation 500-3500 ft

Leguminous trees and succulents are abundant. Tree species include: foothill and blue palo verde, ironwood, mesquites, and cat-claw acacia. The giant saguaro cactus is found in this community, as are numerous other succulent species including: chollas, pincushions, barrel cacti, organpipe, ocotillo, hedgehog, and prickly-pear. Other conspicuous species include: creosotebush, jojoba, brittlebush, desert hackberry, triangle-leaf bursage, ratany, desert broom, desert willow, and chuparosa.



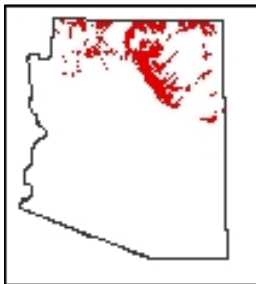
Mohave: elevation 1000-5500 ft

Landscapes are typically quite barren and desolate in appearance with low, scattered shrubs; predominately creosotebush, brittlebush, bursage, desert holly, shadscale, and blackbrush. Annuals cover the ground in wet years. Although this landscape is shrub-dominated and lacks giant cacti and many tree species, several large plants such as the Joshua tree and Mohave yucca are common, and mesquites and cat-claw acacia are present.



Chihuahuan: elevation 2000-5500 ft

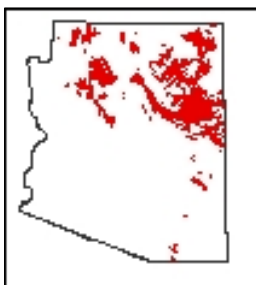
Vegetative community consists of many species of shrubs, leaf succulents, and small cacti. Indicator species include: creosotebush, tarbush, and whitethorn acacia. Trees are rare, but numerous species of small cacti such as prickly pear, cholla, barrel, and hedgehog are present. Other conspicuous species present include: ocotillo, mesquites, desert zinnias, agaves, century plant, sandpaperbush, and a number of yuccas.



Great Basin: elevation 3000-6500 ft

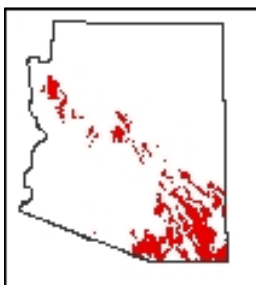
Vegetation consists mostly of scattered low, small-leaved shrubs and almost no trees or succulents. Indicator species are big sagebrush and shadscale. Other conspicuous species present include: blackbrush, Mormon-tea, four-wing saltbush, greasewood, rabbitbrush, horsebrush, and winterfat.

GRASSLANDS



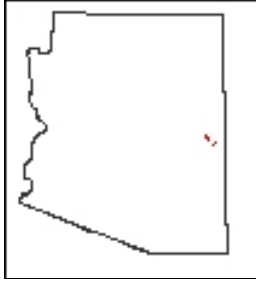
Plains/Great Basin: elevation 5000-7000 ft

Perennial grass dominated landscape usually composed of mixed or short-grass communities. Blue, black, and sideoats grammas are important. Other important grasses include: buffalo-grass, Indian rice grass, Galleta grass, prairie Junegrass, Plains lovegrass, vine mesquite grass, Texas Timothy, and alkali sacaton. Shrubs such as four-wing saltbush, sagebrush, winterfat, cholla, and rabbitbrush may be scattered throughout. Junipers have invaded large areas of all types of grasslands in the Southwest. Forbs are abundant.



Semidesert: elevation 3500-4500 ft

Originally, the grasses were perennial bunch grasses, the bases of the clumps separated by intervening bare ground. Currently, three-awn and tobosa species together with grama grasses dominate. Some areas are essentially pure stands of grass. In other places, an open savanna with grasses beneath oaks or mesquites is common. Most areas are

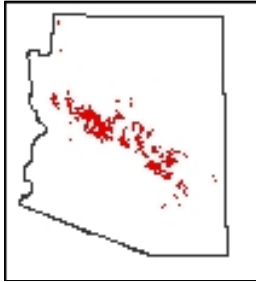


characterized by short-grasses interspersed with a variety of low-growing trees, shrubs, and cacti. Grass species include: black, blue, sideoats and hairy gramas, buffalo grass, Plains lovegrass, little bluestem, Plains bristlegrass, fluffgrass, burrograss, Lehmann lovegrass, and hairy tridens. Forbs and weeds are abundant. Other conspicuous species present include: acacias, prickly-pear cactus, century plant, cholla, and yuccas.

Subalpine: elevation 8500+ft

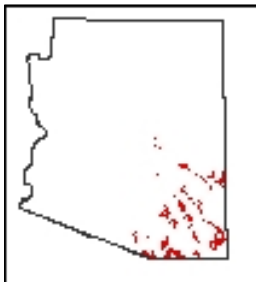
Typically a high elevation, lush grassland habitat dominated by perennial bunchgrasses and forbs. Unlike plains and desert grasslands, subalpine grasslands receive relatively high average annual precipitation.

WOODLANDS / FORESTS



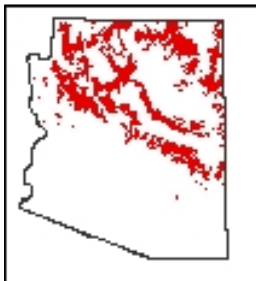
Chaparral: elevation 4000-6000 ft

Often comprised almost entirely of 2 species of manzanita and shrub live oak, which form a dense, nearly impenetrable thicket. Receives substantial summer rainfall. Because of the high percentage of crown cover, forbs and grasses are not abundant except in the scattered interscrub openings or after a fire event. Other conspicuous species present include: birchleaf mountain-mahogany, skunkbush sumac, silktassels, and desert ceanothus. Succulents such as prickly-pear cactus, agaves, and yuccas commonly grow alongside shrubs.



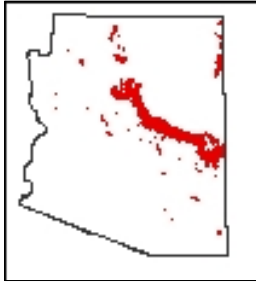
Madrean: elevation 5000-7000 ft

Predominantly found in southeastern Arizona. Evergreen oaks dominate with junipers and sometimes pines also growing in the mix. Open savannas are common in some areas with numerous grasses growing beneath the oaks. Common tree species include: Emory oak, Mexican blue oak, Arizona oak, silverleaf oak, alligator bark juniper, one-seed juniper, and Mexican pinyon pine.



Great Basin Conifer: elevation 3400-8800 ft

Evergreen woodland dominated by juniper and pinyon-pine species. North of the Mogollon Rim, Utah and one-seed juniper are intermixed with pinyon and to the south, alligator juniper grows. Colorado Pinyon-pine is the characteristic species throughout nearly the entire zone. Singleleaf pinyon grows locally intermixed with Utah juniper, mostly in northwestern Arizona. Grassland, desertscrub, or chaparral woodland may form an understory beneath and between woodland trees, depending on the area.



Montane Conifer: elevation 6000-9000 ft

Ponderosa pine dominates, with Douglas fir and white fir growing in varying proportions. Other tree species include limber pine, southwestern white pine, Gambel oak, silverleaf oak, bigtooth maple, and quaking aspen. Many stands of ponderosa pine are relatively open or park-like, which permits the growth of grasses, forbs, shrubs, and broadleaf trees as understory. Mainly located along the southern rim of the Colorado Plateau in central Arizona as an unbroken ponderosa pine forest. In southern Arizona, the Montane Conifer Forest grows primarily on the larger mountains as "islands."

Alpine Conifer: elevation 8000-9000 ft

A mix of many coniferous and one deciduous species characterize these spruce-alpine fir woodlands. The principal boreal conifers are: Engelmann spruce, blue spruce, corkbark fir, white fir, Douglas fir, bristlecone pine and limber pine. Quaking aspen is the dominant deciduous species, both intermixed with various coniferous species and in pure stands. Dense overstories common to these forests severely limit or prevent growth of herbaceous vegetation.

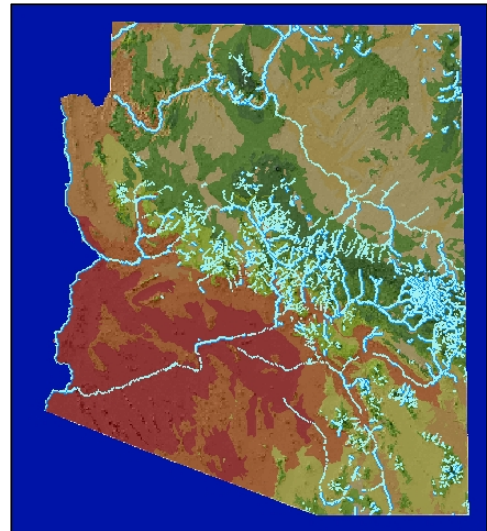
Tundra: elevation 11,000-12,600 ft

Located on the peaks of the San Francisco Mountains in northern Arizona. Extreme cold temperatures exclude trees and succulents. Dominant plants are ground-hugging woody shrubs and perennial herbs.

RIPARIAN / AQUATIC SYSTEMS

Wetlands/Springs/Seeps – Scattered through out the state, these landscapes provide critical habitat for a number of species. Wetlands, whether perennial or intermittent, provide important habitat for migrating waterfowl. All seeps and springs provide water for wildlife consumption, while some are host to a number of rare and endemic species. This category also includes natural cienegas (marshes), tinajas (ephemeral pools), and stock tanks. In addition, these features often support riparian vegetation which varies across the state but is often more diverse and lush than surrounding vegetation.

Streams/Rivers – Includes both perennial and intermittent running waters and the associated riparian area.



Lakes/Reservoirs – Includes small man-made lakes, backwater lakes, and large reservoirs, associated marshes and riparian vegetation throughout the state.

SITE-SPECIFIC OR FINE-SCALE LANDSCAPE CONSERVATION

Landscape-level conservation strategies are designed to benefit multiple populations of wildlife regardless of vulnerability status, through protection of the natural resources upon which they depend. Many wildlife populations, however, have very specific needs that are not necessarily met by generalized strategies. In these cases, localized actions are often needed to insure the well-being of those populations.

Any number of circumstances can prompt site-specific conservation actions. Threatened or highly vulnerable species may require localized monitoring to insure their survival. An example would be active monitoring of bald eagle nests by Department volunteers and contractors. Small, geographically isolated populations with specific habitat needs are at risk of extirpation if those habitats are degraded or converted to other uses. Relocations and reintroductions of extirpated species may require habitat modeling, while many existing populations benefit from habitat improvements and removal of undesirable nonnative species. For example, the Fossil Creek renovation effort in 2004 involved removal of nonnative fish with the replacement of natives, following the return of natural stream flows to the creek with the decommissioning of the hydropower facility at Childs. Efforts are also underway to restore prime grassland habitat for pronghorn antelope through managing juniper encroachment, identifying and restoring important corridors, and restoring wetlands on Anderson Mesa.

These are just a few examples of site-specific conservation actions already underway. The Department is working with numerous land managers and conservation partners on many site-specific activities to promote restoration and recovery of wildlife and wildlife habitats.

WILDLIFE OF CONSERVATION PRIORITY (ELEMENT 1)

CWCS Processes (Companion Document A) describe the criteria used to identify wildlife of conservation priority for Arizona's CWCS. Specific species criteria are imbedded in the following 4 categories:

Vulnerable Species. In addition to identifying species identified legally as threatened, endangered, candidate, or of special concern (under federal and/or state lists).

Responsibility Species. Some species depend primarily on healthy populations within Arizona in order to maintain the whole species. Other species may reside primarily in Mexico and have sub-populations extending into the United States only in Arizona. In addition, many wildlife species are of special importance to tribes in Arizona.

Community Focal Species. Some species contribute more to ecosystem functioning than one might expect based on their numbers or biomass. Other species, through selective use of ecosystem resources, are especially informative about the condition of those ecosystems. Finally, some species move across the landscape in the course of the year or

during their lifetimes, so that they rely on healthy functioning of more than one landscape to maintain healthy populations.

Social or Economic Value Species. This category includes many species that have traditionally been hunted or fished, others for their value as “watchable wildlife,” or state and national symbols.

Table D provides a summary of how many wildlife species per taxon group that were identified as priority for conservation in Arizona. Lists of wildlife of conservation priority per ecoregion can be found in Appendix A.

Table D. Number of wildlife species in Arizona that ranked as high priority among 4 evaluation categories (2005).						
	Total Species in Arizona ^A	Total Priority Species ^B	Vulnerable	Responsibility	Community Focal	Social / Economic
Amphibians	31	23	16	7	9	4
Birds	396	352	138	9	294	102
Fish	72	49	35	21	33	17
Crustaceans & Mollusks	85	29	29	24	25	0
Mammals	166	115	72	44	39	34
Reptiles	143	79	58	16	6	20
Total	893	647	348	121	406	177
^A : Of the 893 taxa (vertebrates, crustaceans, and mollusks) in the master list, how many in each taxon						
^B : “Priority taxa” here do not include those only identified using the ‘Data Sufficiency’ criterion.						
Note: Other macroinvertebrates not evaluated at this time due to insufficient data.						

Table E summarizes where various taxon groups scored within each criteria under the “Community Focal Species” category. Note: numbers of species are not additive along the taxon rows, since some species evaluated were identified in both criteria ‘Habitat Quality Indicators’ and ‘Home Range Size’ or even among all 3 criteria.

Table E. Criteria that influenced the ‘Community Focal’ species scores for each taxon. Numbers are counts of priority species that scored a ‘1’ under this criterion.				
	‘Focal’ Priority Species	Habitat Quality Indicator	Home Range Size	Keystone and Strongly Interactive
Amphibians	9	9	0	0
Birds	294	29	277	0
Fish	33	29	7	22
Crustaceans & Mollusks*	25	25	0	0
Mammals	39	28	7	14
Reptiles	6	6	0	0
Total	406	126	291	36
* Other macroinvertebrates not evaluated at this time due to insufficient data.				

The Department manages species at either the species or subspecies level, depending on various factors such as: legal requirements and protections, interagency coordination, stakeholder concerns, funding eligibility, national or international reporting conventions, and/or taxonomic determinations through scientific documentation. Counts of wildlife for Arizona's CWCS may therefore not correspond exactly to counts on other Department species lists or narratives.

Data Sufficiency Species. Earlier approaches to conservation of vulnerable species focused on species that were well-known enough to warrant concern. This approach, however, allows other species to "slip under the radar," becoming a conservation crisis. This category is used to identify those species whose population status is not adequately understood to evaluate management needs. These species may be stable or increasing, but little is known about the species to actively management them effectively. This category feeds directly to research, survey, and monitoring needs, without calling for conservation activities unless the information-gathering activities indicate this is necessary.

A total of 221 species were identified in the Data Sufficiency category: 99 birds, 55 crustaceans and mollusks, 52 mammals, and 15 reptiles. These species are identified per ecoregion in Appendix B. An improved understanding of the status of these species is desirable to fully understand their management needs. The Department's understanding of the vulnerability of amphibians and native fishes in Arizona is relatively complete. Extensive surveys of native fishes and amphibians in Arizona have been conducted and their vulnerability is better documented.

STRESSORS/THREATS TO ARIZONA'S WILDLIFE (ELEMENT 3)

Arizona's wildlife and wildlife habitats have been affected by numerous land management actions and human activities throughout the state's history. These activities should be viewed in context with past social values and prevailing conditions relative to today. Many current stressors to wildlife result from a legacy of early use and stewardship of Arizona's landscapes.

Prior to Spanish occupation in the 1500s, the landscapes and ecosystems of Arizona were being influenced by human activities. Aboriginal cultures used wildlife resources as forage, cultivated crops, diverted water, extracted timber, and may have used fire as a hunting tool (Turner and others 2003). Spanish settlers brought more agriculture to Arizona along with horses, sheep, and cattle. However, it wasn't until the 1880s when railroads linked the Arizona Territory with other states, that Arizona's natural resources were effectively exploited and shipped elsewhere. Over the next few decades, mining, agriculture, timber harvest, and livestock production dominated the State's economy (Sheridan 1995). Over time these pioneering industries eventually gave way to emerging service and technological fields, but they still remain integral to Arizona's current economy and exist in varying levels of intensity throughout the State (Arizona Department of Commerce 2002). The impacts from historic high levels of these activities still persist in many of the state's landscapes and recovery of those areas to pre-settlement conditions is slow (Cooper 1960; Cooke and Reeves 1976; Turner and others 2003).

By the early twentieth century, new constituencies began to influence Arizona's economy. With the establishment of national forests, parks, and monuments by the federal government, tourism took a hold in Arizona (Sheridan 1995). Over time, regulated hunting and fishing overshadowed subsistence harvesting of wildlife. Other outdoor recreational pursuits increased as well, especially after World War II, when Arizona's population growth accelerated.

Currently, population growth in Arizona is among the highest in the nation, growing 40% from 3.6 to 5.1 million between 1990 and 2000 (U.S. Census Bureau 2000). Current estimates indicate an additional 13% growth in population from 2000 to 2004 (U.S. Census Bureau 2005). While Phoenix and Tucson continue to grow as desert urban centers, rural development is increasing rapidly throughout the State. This growth presents a number of challenges to wildlife conservation including but not limited to: habitat loss due to development; habitat fragmentation and degradation from networks of roads and utility lines; introduction of non-native plants and animals that may be invasive and nuisance species; and increased demand for already limited water resources. Pima County was quick to recognize these threats and developed the Sonoran Desert Conservation Plan that integrates natural, cultural, and historical resource protection with urban growth (Ewing and others 2005).

Recreational pressures on Arizona's landscapes are also increasing due to the growing population, mild winter climate, and many open spaces. Popular outdoor activities include: hiking, camping, hunting, fishing, sightseeing, wildlife-watching, watercraft and off-highway vehicle use, and other recreational and wildlife-oriented pursuits. The Department is committed to supporting a multiple-use policy (AGFC 1991) that assures quality wildlands are available to the public now and in the future. Under this policy, the Department's goal is to reduce stress to wildlife and wildlife habitats while insuring quality outdoor recreation opportunities for people. Changes in land status on State and federal lands and access restrictions onto and across private lands also add to the difficulty of sustaining viable populations of wildlife, conserving natural habitats, and accommodating increased outdoor recreation, economic prosperity, and urban/rural growth across Arizona.

Periodic drought is a normal component of the climate system in the Southwest (Cobb and Clark 2003). Drought affects wildlife and wildlife habitat through various means: it places additional stress on species for limited water resources (Sprigg and others 2000); increases susceptibility of forests to insect outbreaks and pathogens (Dale and others 2001); favors the spread of unwanted introduced species (Allen and Breshears 1998); alters ecosystem function (Franklin and others 1992; Dale and others 2000); and increases the possibility of large-scale wildfires (Sprigg and others 2000). In addition, recurrent drought may now be superimposed on climate change. The Southwest has been subject to a slight warming trend over the last 100 years that is expected to continue into the next century. According to climate prediction models, temperatures are expected to rise 4-5 °F by 2030 and 7-12 °F by 2090 (Sprigg and others 2000).

In coming decades, such changes are expected to produce major shifts in vegetation distributions at unprecedented rates (IPCC 1998). Recent research has shown that considerable vegetation changes have occurred in the past and can be expected in Arizona's future (Betancourt 1990; Brown and others 1997; Allen and Breshears 1998; Sprigg and others 2000). Often, these

changes were a result of widespread mortality due to secondary effects such as insect infestations and fire. Currently the frequency, size, intensity, seasonality, and type of fires have changed throughout the Southwest (Dale and others 2001). In addition, the frequency of large-scale, high intensity fires is increasing throughout the region (Sprigg and others 2000; Dale and others 2001). Traditional practices of wildfire suppression have also contributed to these trends in forest structure and composition (Collier and Webb 2002).

Gori and Enquist (2003) documented a substantial decline in the area of grasslands throughout the Apache Highlands. Approximately 37% of historical grasslands have undergone a cover-type conversion to shrublands, and an additional 32% will likely be converted to shrubland in the near future due to current land management practices. Conservation of grasslands is needed to maintain many grassland species, particularly wide-ranging species such as pronghorn.

Increased fire hazards, drought, and climate change present unique challenges for wildlife management planning because predicting their occurrences is uncertain. However, the effects of these processes are well known and need to be incorporated into management and policy plans (Cobb and Clark 2003).

As described in the CWCS Processes (Companion Document A), important stressors to wildlife and wildlife habitat were identified for Arizona (Table F).

Table F. Specific stressors that were evaluated as important in at least one landscape type, per ecoregion. Stressors that ranked 'high' or 'extreme' in aquatic/riparian (A) landscapes only, terrestrial (T) landscapes only, or both (B) terrestrial and aquatic/riparian landscapes.

Stressors	Ecoregions						Stressors	Ecoregions					
	AHS	AHN	CP	MD	SD	AZNM		AHS	AHN	CP	MD	SD	AZNM
Altered river flow regimes	A	A	A	A	A	A	Motorized recreation off-trail	T	T	T	T	T	T
Streambank alteration/channelization	A	A	A	A	A	A	Unauthorized roads & trails	T	T	T	T	T	T
Bait-bucket dumping/illegal stocking	A	A	A	A	A	A	Unnatural fire regimes	T	T	T		T	T
Management for game and sport fish	A	A		A	A	A	Insect Infestation	T	T	T		T	T
Water diversion/water catchments	A		A	A	A	A	Loss of key predators/prey	T	T	T			T
Dams/reservoirs/impoundments	A	A	A	A		A	Urban growth	T	T		T		T
Heavy metals/mine tailings	A	A	A		A	A	Feral animals	T	T	T			T
Canals/pipelines	A	A	A		A	A	Illegal dumping/littering		T	T		T	T
Mining	A	A	A		A	A	Power lines/wind-harnessing turbines	T	T	T			T
Contaminants from waste water/runoff		A	A	A		A	Right-of-way fencing along roadways	T		T		T	T
Pesticides/herbicides	A	A	A			A	Habitat fragmentation/barriers	B	B	B	A	B	B
Sediment/ash flows	A	A	A			A	Roads (for motorized vehicles)	B	B	B	T	T	B
Unnatural fire regimes	A		A		A	A	Rural development	B	B	T	T	A	B
Recreational sites/facilities	A	A	A			A	Groundwater depletion/springhead use	B	B	T	T	A	B
Nuisance animals	B	B	B	A	B	B	Livestock management	B	B	B	B	A	B
Shift to warmer climate	B	B	B			B	Soil erosion	B	B	B	B		B
Nuisance plants	B	B	B	B	B	B	Disease/pathogens/parasites	B	B	B	B	B	B
Grazing by herbivores	B	B	B	B		B	Drought	B	B	B	B	B	B
							Habitat degradation/shrub invasions	B	B	B	B	B	B

Table F. Specific stressors that were evaluated as important in at least one landscape type, per ecoregion. Stressors that ranked ‘high’ or ‘extreme’ in aquatic/riparian (A) landscapes only, terrestrial (T) landscapes only, or both (B) terrestrial and aquatic/riparian landscapes.													
Stressors	Ecoregions						Stressors	Ecoregions					
	AHS	AHN	CP	MD	SD	AZNM		AHS	AHN	CP	MD	SD	AZNM
Specific to Border Issues (Sonoran Desert and Apache Highlands South only)													
Altered fire regimes	B				T		Dispersed camping	B				B	
Enforcement activities	B				A		Illegal dumping/littering	B				B	
Enforcement fences	B						Unauthorized roads & trails	B				B	
Light pollution	B						Water use/contamination	T					
							Disease/pathogens/parasites	T					

LITERATURE CITED

- Allen, CD and DD Breshears. 1998. Drought-induced shift of a forest-woodland ecotone: rapid landscape response to climate variation. *Proceedings National Academy of Science* **95**: 14839-14842.
- Arizona Department of Commerce. 2002. Statewide Economic Study Part 1: economic base study and special reports. Phoenix, Arizona.
- Arizona Game and Fish Commission (AGFC). 1991. Commission policy statement on multiple-use (effective March 15, 1991). A2.18 of the Department Operating Manual. Arizona Game and Fish Department, Phoenix, Arizona.
- Bailowitz, RA and JP Brock. 1991. *Butterflies of Southeastern Arizona*. Sonoran Arthropod Studies, Inc., Tucson, Arizona.
- Behavior Research Center, Inc. 2004. Comprehensive Wildlife Conservation Strategy Survey—Arizona. Prepared for the Arizona Game and Fish Department. Phoenix, Arizona.
- Betancourt, JL 1990. Late Quaternary biogeography of the Colorado Plateau. Pp. 259-293 In: Betancourt, JL, TRV Devender, and PS Martin, editors. *Packrat middens: The last 40,000 years of biotic change*. University of Arizona Press, Tucson. 469 p.
- Brown, DE (editor). 1982. Biotic Communities of the American Southwest - United States and Mexico. Desert Plants - Special Issue Vol. 4, No. 1-4.
- Brown, DE (editor). 1994. *Biotic Communities: Southwestern United States and Northwestern Mexico*. University of Utah Press, Salt Lake City, Utah. 342 pp.
- Brown, DE, and CH Lowe. 1974. A digitized computer-compatible classification for natural and potential vegetation in the Southwest with particular reference to Arizona. *Journal Arizona Academy Science* **9**, Supplement 2: 1-11
- Brown, JH, TJ Valone, and CG Curtin. 1997. Reorganization of an arid ecosystem in response to recent climate change. *Proceedings of the National Academy of Science*. **94**: 9729-9733.
- Center for Sustainable Environments (CSE), Terralingua, and Grand Canyon Wildlands Council. 2002. Safeguarding the uniqueness of the Colorado Plateau: an ecoregional assessment of biocultural diversity. Flagstaff, Arizona. 98 pp.
<http://www.terralingua.org/OtherPubs/Colorado%20Plateau.pdf>
- Collier, M and RH Webb. 2002. *Floods, Droughts, and Climate Change*. University of Arizona Press, Tucson, Arizona. 153 pp.
- Cobb, N and E Clark. 2003. 2003 Southwest Drought Summit Summary Report.

- Cooke, RU and RW Reeves. 1976. *Arroyos and Environmental Change in the American Southwest*. Clarendon Press, Oxford. 213 pp.
- Cooper, CF. 1960. Changes in vegetation, structure, and growth of southwester pine forests since white settlement. *Ecological Monographs* **30**:129-164.
- Dale, VH, LA Joyce, S McNulty, and RP Nielson. 2000. The interplay between climate changes, forests, and disturbances. *Science of the Total Environment* **262**: 201-204.
- Dale, VH, LA Joyce, S McNulty, RP Nielson, MP Ayres, MD Flannigan, PJ Hanson, LC Irland, AE Lugo, CJ Peterson, D Simberloff, FJ Swanson, BJ Stocks, and BM Wotton. 2001. Climate change and forest disturbances. *Bioscience* **51**:723-734.
- DeBano, LF, PF Ffolliott, A Ortega-Rubio, GJ Gottfried, RH Hamre, and CB Edminster. 1995. Biodiversity and management of the Madrean Archipelago: the sky islands of southwestern United States and northwestern Mexico: September 19-23, 1994, Tucson, Arizona. Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado. 669 pp.
- Edison, J, M Malone, R Ruisinger, RO Russell, J Tweit, R Tweit, and D Yetman. 1995. Davis and Russell's finding birds in southeast Arizona. Tucson Audubon Society, Tucson, Arizona.
- Ewing, R, J Kostyack, D Chen, B Stein, and M Ernst. 2005. Endangered by sprawl: how runaway development threatens America's wildlife. National Wildlife Foundation, Smart Growth America, and NatureServe. Washington, DC. 53 pp.
- Franklin, JF, FJ Swanson, ME Harmon, DA Perry, TA Spies, VH Dale, A McKee, WK Ferrell, JE Means, SV Gregory, JD Lattin, TD Schowalter, and D David. 1992. Effects of global climatic change on forests in northwestern North America. P. 244-257 in RL Peters and TE Lovejoy (eds.), *Global warming and biological diversity*. Yale University Press: New Haven, CT
- Gori, DF, and CAF Enquist. 2003. An assessment of the spatial extent and condition of grasslands in central and southern Arizona, southwestern New Mexico, and northern Mexico. The Nature Conservancy, Tucson, Arizona.
- IPCC – International Panel on Climate Change. 1998. *The Regional Impacts of Climate Change. An Assessment of Vulnerability. A Special Report of IPCC Working Group II*. Watson, R.T., M.C. Zinyowera, and R.H. Moss (eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 517 pp.
- Lowe, CH. 1985. *Arizona's Natural Environment*. The University of Arizona Press. Tucson, Arizona.

- Marshall, JT. 1957. *Birds of Pine-Oak Woodland in Southern Arizona and Adjacent Mexico*. Cooper Ornithological Society, Berkeley, California. Pacific Coast Avifauna. 125 pp.
- Marshall, RM, S Anderson, M Batcher, P Comer, S Cornelius, R Cox, A Gondor, D Gori, J Humke, R Paredes Aguilar, IE Parra, S Schwartz. 2000. An Ecological Analysis of Conservation Priorities in the Sonoran Desert Ecoregion. Prepared by The Nature Conservancy Arizona Chapter, Sonoran Institute, and Instituto del Medio Ambiente y el Desarrollo Sustentable del Estado de Sonora with support from Department of Defense Legacy Program, Agency and Institutional partners. 146 pp.
- Marshall, RM, D Turner, A Gondor, D Gori, C Enquist, G Luna, R Paredes Aguilar, S Anderson, S Schwartz, C Watts, E Lopez, P Comer. 2004. An Ecological Analysis of Conservation Priorities in the Apache Highlands Ecoregion. Prepared by The Nature Conservancy of Arizona, Instituto del Medio Ambiente y el Desarrollo Sustentable del Estado de Sonora, agency and institutional partners. 152 pp.
- Nabhan, GP and AR Holdsworth. 1999. State of the Biome: Uniqueness, Biodiversity, Threats and the Adequacy of Protection in the Sonoran Bioregion. The Wildlands Project. Tucson, Arizona. 80 pp.
- Nature Conservancy, The (TNC). 1999. Ecoregional conservation analysis of the Arizona - New Mexico Mountains. The Nature Conservancy of New Mexico, Santa Fe. 151 pp.
- Nature Conservancy, The (TNC). 2001. Ecoregion-based conservation in the Mojave Desert. The Nature Conservancy of Nevada, Las Vegas. 367 pp.
- Phillips, SJ and PW Comus. 2000. *A Natural History of the Sonoran Desert*. University of California Press. 650 pp.
- Rosenstock, SS, MJ Rabe, CS O'Brien, and RB Waddell. 2004. Studies of wildlife water developments in southwestern Arizona: wildlife use, water quality, wildlife diseases, wildlife mortalities, and influences on native pollinators. Arizona Game and Fish Department, Research Branch Technical Guidance Bulletin No. 8. Phoenix, Arizona. 15 pp.
- Sheridan, TE. 1995. *Arizona: A History*. University of Arizona Press, Tucson, Arizona.
- Silberman, J. 2002. The Economic Importance of Off-Highway Vehicle Recreation for the State of Arizona. School of Management, Arizona State University, Tempe, Arizona.
- Sprigg, W, T Hinkley, and the Southwest Regional Assessment Group. 2000. Preparing for a Changing Climate: the potential consequences of climate variability and change. Report for the US Global Change Research Program. Institute for the Study of Planet Earth, University of Arizona, Tucson, Arizona. 60 pp.

- Stein, BA, LS Kutner, and JS Adams (editors). 2000. *Precious Heritage: the Status of Biodiversity in the United States*. Oxford University Press. 416 pp.
- Teaming With Wildlife Committee (TWW). 2003a. State Wildlife Grants: The Nation's Core Program for Preventing Wildlife from Becoming Endangered. International Association of Fish and Wildlife Agencies, Washington DC. www.teaming.com
- Tuhy, JS, P Comer, D Dorfman, M Lammert, J Humke, B Cholvín, G Bell, B Neely, S Silbert, L Whitham, and B Baker. 2002. A conservation assessment of the Colorado Plateau ecoregion. The Nature Conservancy, Moab, Utah. 110 p. + appendices.
- Turner, RM. 1994. Mohave desertscrub. in Brown, DE (editor) *Biotic Communities: Southwestern United States and Northwestern Mexico*. University of Utah Press. Salt Lake City, Utah.
- Turner, RM, RH Webb, JE Bowers, and JR Hastings. 2003. *The Changing Mile Revisited: an ecological study of vegetation change with time in the lower mile of an arid and semiarid region*. The University of Arizona Press, Tucson, Arizona. 334 pp.
- US Census Bureau. 2000. Arizona County and State Statistics.
<http://www.census.gov/census2000/states/az.html>
- US Census Bureau. 2005. Arizona County and State Statistics.
<http://www.census.gov/census2005/states/az.html>
- Warshall, P. 1995. Southwestern sky island ecosystems. Pp. 318-322 in ET LaRoe, GS Farris, CE Puckett, PD Doran, and MJ Mac (editors) *Our living resources: a report to the nation on the distribution, abundance, and health of US plants, animals, and ecosystems*. US Department of the Interior, National Biological Service, Washington, DC.
- Warshall, P. 1995. The Madrean sky island archipelago: A planetary overview. Pp. 6-18 in LF DeBano, PF Ffolliott, A Ortega-Rubio, GJ Gottfried, RH Hamre, and CB Edminister (technical coordinators). *Biodiversity and management of the madrean archipelago: the sky islands of southwestern United States and northwestern Mexico*. 1994 September 19-23, Tucson, Arizona. General Technical Report RM-GTR-264. Fort Collins, Colorado: US Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 669 pp.

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Priority Wildlife					HDMS Abstract	Presence in Ecoregion (X=present)						Status (X=priority)				
Genus	Species	Subspecies	Common	Taxon		North Highlands	South Apache Highlands	Apache Mountains	AZ-NM Plateau	Colorado Plateau	Mohave Desert	Sonoran Desert	Vulnerable	Focal	Responsible	Economic
Ambystoma	tigrinum	nebulosum	Arizona Tiger Salamander	Amphibian		X		X	X			X	X			X
Ambystoma	tigrinum	stebbinsi	Sonoran Tiger Salamander	Amphibian	X		X					X		X		
Bufo	debilis		Western Green Toad	Amphibian	X		X				X		X			X
Bufo	microscaphus		Arizona Toad	Amphibian	X	X		X	X	X	X	X		X		
Bufo	punctatus		Red-spotted Toad	Amphibian		X	X	X	X	X	X		X			
Bufo	retiformis		Sonoran Green Toad	Amphibian			X				X		X			X
Eleutherodactylus	augusti	cactorum	Western Barking Frog	Amphibian	X	X	X					X				
Gastrophryne	olivacea		Great Plains Narrow-mouthed Toad	Amphibian	X		X				X	X				
Hyla	arenicolor		Canyon Treefrog	Amphibian	X	X	X	X	X	X	X	X	X			
Hyla	wrightorum		Mountain Treefrog	Amphibian		X	X	X						X		
Pseudacris	regilla	deserticola	Desert Pacific Treefrog	Amphibian						X		X				
Pseudacris	triseriata		Western Chorus Frog	Amphibian		X		X				X	X			
Pternohyla	fodiens		Lowland Burrowing Treefrog	Amphibian	X		X				X	X				
Rana	blairi		Plains Leopard Frog	Amphibian	X		X	X				X				
Rana	chiricahuensis		Chiricahua Leopard Frog	Amphibian	X	X	X	X				X		X		
Rana	onca		Relict Leopard Frog	Amphibian	X				X	X		X				
Rana	pipiens		Northern Leopard Frog	Amphibian	X	X		X	X			X		X		
Rana	tarahumarae		Tarahumara Frog	Amphibian	X		X					X				
Rana	yavapaiensis		Lowland Leopard Frog	Amphibian	X	X	X	X		X	X	X		X		
Rana	subaquavocalis		Ramsey Canyon Leopard Frog	Amphibian	X		X					X		X		X
Scaphiopus	couchii		Couch's Spadefoot	Amphibian			X		X		X		X			
Spea	bombifrons		Plains Spadefoot	Amphibian			X	X	X				X			
Spea	intermontana		Great Basin Spadefoot	Amphibian					X	X		X	X			

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Accipiter	striatus		Sharp-shinned Hawk	Bird		X	X	X	X	X	X		X			
Accipiter	cooperii		Cooper's Hawk	Bird		X	X	X	X	X	X		X			
Accipiter	gentilis	atricapillu	Northern Goshawk	Bird	X	X	X	X	X	X	X	X	X	X		
Accipiter	gentilis	apache	Apache Northern Goshawk	Bird			X					X	X			X
Actitis	macularius		Spotted Sandpiper	Bird		X	X	X	X	X	X		X			
Aechmophorus	occidentalis		Western Grebe	Bird		X	X	X	X	X	X	X	X			
Aechmophorus	clarkii		Clark's Grebe	Bird	X	X	X	X	X	X	X	X	X			
Aegolius	acadicus		Northern Saw-whet Owl	Bird		X	X	X	X	X	X					X
Aeronautes	saxatalis		White-throated Swift	Bird		X	X	X	X	X	X		X			
Agelaius	phoeniceus		Red-winged Blackbird	Bird		X	X	X	X	X	X		X			
Aimophila	botterii		Botteri's Sparrow	Bird			X					X	X			X
Aimophila	cassinii		Cassin's Sparrow	Bird		X	X	X	X		X		X			X
Aimophila	carpalis		Rufous-winged Sparrow	Bird			X				X		X			X
Aimophila	ruficeps		Rufous-crowned Sparrow	Bird	X	X	X	X	X	X	X		X			
Aimophila	quinquestriata		Five-striped Sparrow	Bird	X		X					X	X			X
Aix	sponsa		Wood Duck	Bird		X	X	X	X	X	X	X	X			
Alectoris	chukar		Chukar	Bird		X			X	X			X			
Amazilia	beryllina		Berylline Hummingbird	Bird	X		X					X	X			X
Amazilia	violiceps		Violet-crowned Hummingbird	Bird	X		X				X	X	X			X
Ammodramus	bairdii		Baird's Sparrow	Bird	X	X	X					X	X			X
Ammodramus	savannarum	ammolegus	Arizona Grasshopper Sparrow	Bird	X		X					X	X			X
Ammodramus	savannarum	perpallidus	Western Grasshopper Sparrow	Bird		X	X	X	X	X	X	X	X			
Amphispiza	bilineata		Black-throated Sparrow	Bird		X	X	X	X	X	X		X			

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Amphispiza	belli		Sage Sparrow	Bird		X	X	X	X	X	X		X		X
Anas	crecca		Green-winged Teal	Bird		X	X	X	X	X	X		X		
Anas	platyrhynchos		Mallard	Bird		X	X	X	X	X	X		X		
Anas	acuta		Northern Pintail	Bird		X	X	X	X	X	X	X	X		
Anas	discors		Blue-winged Teal	Bird		X	X	X	X	X	X	X	X		
Anas	cyanoptera		Cinnamon Teal	Bird		X	X	X	X	X	X		X		
Anas	clypeata		Northern Shoveler	Bird		X	X	X	X	X	X	X	X		
Anas	strepera		Gadwall	Bird		X	X	X	X	X	X		X		
Anas	americana		American Wigeon	Bird		X	X	X	X	X	X	X	X		
Anser	albifrons		Greater White-fronted Goose	Bird		X	X	X	X	X	X		X		
Anthus	rubescens		American Pipit	Bird		X	X	X	X	X	X	X	X		
Anthus	spragueii		Sprague's Pipit	Bird	X	X	X	X	X		X	X	X		X
Aphelocoma	ultramarina		Mexican Jay	Bird		X	X	X			X				X
Aquila	chrysaetos		Golden Eagle	Bird	X	X	X	X	X	X	X		X	X	
Archilochus	alexandri		Black-chinned Hummingbird	Bird		X	X	X	X	X	X		X		X
Ardea	alba		Great Egret	Bird	X	X	X	X	X	X	X	X			
Asio	otus		Long-eared Owl	Bird		X	X	X	X	X	X				X
Asio	flammeus		Short-eared Owl	Bird		X	X	X	X	X	X		X		X
Asturina	nitida	maxima	Northern Gray Hawk	Bird	X		X				X	X	X		X
Athene	cunicularia	hypugaea	Western Burrowing Owl	Bird	X	X	X	X	X	X	X				X
Aythya	valisineria		Canvasback	Bird		X	X	X	X	X	X	X	X		
Aythya	americana		Redhead	Bird		X	X	X	X	X	X		X		
Aythya	collaris		Ring-necked Duck	Bird		X	X	X	X	X	X		X		

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Aythya	marila		Greater Scaup	Bird		X	X	X	X	X	X	X	X		
Aythya	affinis		Lesser Scaup	Bird		X	X	X	X	X	X		X		
Baeolophus	wollweberi		Bridled Titmouse	Bird		X	X	X			X				X
Basileuterus	rufifrons		Rufous-capped Warbler	Bird			X					X			X
Bombycilla	cedrorum		Cedar Waxwing	Bird		X	X	X	X	X	X		X		
Botaurus	lentiginosus		American Bittern	Bird	X	X	X	X	X	X	X	X	X		X
Branta	canadensis		Canada Goose	Bird		X	X	X	X	X	X	X	X		
Branta	hutchinsii		Cackling Goose	Bird		X	X	X	X	X	X	X	X		X
Bubulcus	ibis		Cattle Egret	Bird		X	X	X	X	X	X	X			
Bucephala	clangula		Common Goldeneye	Bird		X	X	X	X	X	X		X		
Bucephala	islandica		Barrow's Goldeneye	Bird		X	X	X	X	X	X	X	X		X
Bucephala	albeola		Bufflehead	Bird		X	X	X	X	X	X		X		
Buteo	lineatus		Red-shouldered Hawk	Bird		X	X	X	X	X	X	X	X		X
Buteo	platypterus		Broad-winged Hawk	Bird		X	X	X	X		X	X	X		X
Buteo	brachyurus		Short-tailed hawk	Bird	X		X					X	X		X
Buteo	swainsoni		Swainson's Hawk	Bird	X	X	X	X	X	X	X		X		
Buteo	albonotatus		Zone-tailed Hawk	Bird		X	X	X	X	X	X		X		X
Buteo	regalis		Ferruginous Hawk	Bird	X	X	X	X	X	X	X	X	X		X
Buteo	lagopus		Rough-legged Hawk	Bird		X	X	X	X	X	X		X		
Buteogallus	anthracinus		Common Black-Hawk	Bird	X	X	X	X		X	X	X	X		X
Butorides	virescens		Green Heron	Bird		X	X	X	X	X	X		X		
Calamospiza	melanocorys		Lark Bunting	Bird		X	X	X	X		X		X		
Calcarius	mccownii		McCown's Longspur	Bird		X	X	X	X		X	X	X		X

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Clangula	hyemalis		Long-tailed Duck	Bird		X	X	X	X	X	X	X	X	X		
Coccothraustes	vespertinus		Evening Grosbeak	Bird		X	X	X	X	X	X	X	X	X		
Coccyzus	americanus	occidenta	Western Yellow-billed Cuckoo	Bird	X	X	X	X	X	X	X	X	X	X		
Colaptes	auratus		Northern Flicker	Bird		X	X	X	X	X	X			X		
Colinus	virginianus	ridgwayi	Masked Bobwhite	Bird	X		X						X	X	X	X
Columbina	talpacoti		Ruddy Ground-Dove	Bird		X	X					X	X			X
Contopus	cooperi		Olive-sided Flycatcher	Bird		X	X	X	X	X	X	X	X	X		
Contopus	pertinax		Greater Pewee	Bird		X	X	X				X		X		X
Contopus	sordidulus		Western Wood-Pewee	Bird		X	X	X	X	X	X			X		
Coragyps	atratus		Black Vulture	Bird			X					X		X		
Corvus	brachyrhynchos		American Crow	Bird		X	X	X	X	X	X			X		
Corvus	cryptoleucus		Chihuahuan Raven	Bird		X	X					X		X		
Corvus	corax		Common Raven	Bird		X	X	X	X	X	X			X		
Cyanocitta	stelleri		Steller's Jay	Bird		X	X	X	X	X	X			X		
Cygnus	columbianus		Tundra Swan	Bird		X	X	X	X	X	X			X	X	
Cynanthus	latirostris		Broad-billed Hummingbird	Bird			X					X				X
Cyrtonyx	montezumae		Montezuma Quail	Bird		X	X	X						X		X
Dendragapus	obscurus		Blue Grouse	Bird				X	X				X			X
Dendrocygna	autumnalis		Black-bellied Whistling-Duck	Bird	X	X	X					X	X			X
Dendroica	petechia		Yellow Warbler	Bird		X	X	X	X	X	X			X		
Dendroica	pensylvanica		Chestnut-sided Warbler	Bird		X	X	X	X	X	X			X		
Dendroica	coronata		Yellow-rumped Warbler	Bird		X	X	X	X	X	X			X		
Dendroica	nigrescens		Black-throated Gray Warbler	Bird		X	X	X	X	X	X			X		

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Dendroica	townsendi		Townsend's Warbler	Bird		X	X	X	X	X	X		X		
Dendroica	occidentalis		Hermit Warbler	Bird		X	X	X	X	X	X		X		
Dendroica	graciae		Grace's Warbler	Bird		X	X	X	X	X	X		X		X
Dolichonyx	oryzivorus		Bobolink	Bird	X	X	X	X	X	X	X	X	X		
Dumetella	carolinensis		Gray Catbird	Bird	X	X	X	X	X	X	X	X	X		X
Egretta	thula		Snowy Egret	Bird	X	X	X	X	X	X	X	X	X		
Egretta	caerulea		Little Blue Heron	Bird		X	X	X	X	X	X		X		
Egretta	tricolor		Tricolored Heron	Bird		X	X	X	X	X	X	X	X		
Egretta	rufescens		Reddish Egret	Bird		X	X			X	X	X	X		
Elanus	leucurus		White-tailed Kite	Bird	X	X	X				X	X			
Empidonax	traillii		Willow Flycatcher	Bird		X	X	X	X	X	X	X	X		
Empidonax	traillii	extimus	Southwestern Willow Flycatcher	Bird	X	X	X	X	X	X	X	X	X	X	X
Empidonax	hammondii		Hammond's Flycatcher	Bird	X	X	X	X	X	X	X	X	X		
Empidonax	oberholseri		Dusky Flycatcher	Bird		X	X	X	X	X	X		X		
Empidonax	wrightii		Gray Flycatcher	Bird		X	X	X	X	X	X		X		
Empidonax	difficilis		Pacific-slope Flycatcher	Bird		X	X	X	X	X	X		X		
Empidonax	fulvifrons	pygmaeus	Northern Buff-breasted Flycatcher	Bird	X		X					X	X		X
Empidonax	occidentalis		Cordilleran Flycatcher	Bird		X	X	X	X		X		X		
Eremophila	alpestris		Horned Lark	Bird		X	X	X	X	X	X		X		
Eugenes	fulgens		Magnificent Hummingbird	Bird		X	X	X	X			X	X		X
Euphagus	cycanocephalus		Brewer's Blackbird	Bird		X	X	X	X	X	X		X		
Falco	sparverius		American Kestrel	Bird		X	X	X	X	X	X		X		
Falco	columbarius		Merlin	Bird		X	X	X	X	X	X		X		

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Falco	femoralis	septentrionalis	Northern Aplomado Falcon	Bird	X							X			
Falco	peregrinus		Peregrine Falcon	Bird		X	X	X	X	X	X		X		
Falco	peregrinus	anatum	American Peregrine Falcon	Bird	X	X	X	X	X	X	X	X	X		
Falco	mexicanus		Prairie Falcon	Bird		X	X	X	X	X	X		X		
Gallinago	delicata		Wilson's Snipe	Bird		X	X	X	X	X	X	X	X		
Gavia	immer		Common Loon	Bird		X	X	X	X	X	X		X		
Gavia	pacifica		Pacific Loon	Bird		X	X	X	X	X	X		X		
Geothlypis	trichas		Common Yellowthroat	Bird		X	X	X	X	X	X		X		
Glaucidium	gnoma	gnoma	Northern Pygmy-Owl	Bird		X	X	X	X		X				X
Glaucidium	brasilianum	cactorum	Cactus Ferruginous Pygmy-Owl	Bird	X		X				X	X			X
Grus	canadensis		Sandhill Crane	Bird		X	X	X	X	X	X		X		X
Gymnogyps	californianus		California Condor	Bird	X				X			X		X	X
Haliaeetus	leucocephalus		Bald Eagle	Bird	X	X	X	X	X	X	X	X		X	X
Hirundo	rustica		Barn Swallow	Bird		X	X	X	X	X	X		X		
Hylocharis	leucotis		White-eared Hummingbird	Bird			X					X			X
Icteria	virens		Yellow-breasted Chat	Bird		X	X	X	X	X	X		X		
Icterus	cucullatus		Hooded Oriole	Bird		X	X	X	X	X	X		X		
Icterus	parisorum		Scott's Oriole	Bird		X	X	X	X	X	X		X		
Icterus	bullockii		Bullock's Oriole	Bird		X	X	X	X	X	X		X		
Ictinia	mississippiensis		Mississippi Kite	Bird	X	X	X				X	X			X
Junco	hyemalis		Dark-eyed Junco	Bird		X	X	X	X	X	X		X		
Junco	phaeonotus		Yellow-eyed Junco	Bird		X	X					X			X
Lampornis	clemenciae		Blue-throated Hummingbird	Bird			X					X			X

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Lanius	excubitor		Northern Shrike	Bird		X	X	X	X				X		
Lanius	ludovicianus		Loggerhead Shrike	Bird	X	X	X	X	X	X	X		X		
Larus	pipixcan		Franklin's Gull	Bird		X	X	X	X	X	X		X		
Larus	philadelphia		Bonaparte's Gull	Bird		X	X	X	X	X	X		X		
Larus	delawarensis		Ring-billed Gull	Bird		X	X	X	X	X	X		X		
Larus	californicus		California Gull	Bird		X	X	X	X	X	X		X		
Larus	argentatus		Herring Gull	Bird		X	X	X	X	X	X		X		
Laterallus	jamaicensis	coturnic	California Black Rail	Bird	X					X	X	X	X		
Limnodromus	griseus		Short-billed Dowitcher	Bird		X	X	X	X	X	X		X		
Limnodromus	scolopaceus		Long-billed Dowitcher	Bird		X	X	X	X	X	X		X		
Limosa	fedoa		Marbled Godwit	Bird		X	X	X	X	X	X		X		
Lophodytes	cucullatus		Hooded Merganser	Bird		X	X	X	X	X	X		X		
Megascops	kennicottii		Western Screech-Owl	Bird		X	X	X	X	X	X				X
Megascops	trichopsis		Whiskered Screech-Owl	Bird			X					X			X
Melanerpes	lewis		Lewis's Woodpecker	Bird		X	X	X	X	X	X	X			X
Melanerpes	formicivorus		Acorn Woodpecker	Bird		X	X	X	X	X	X				X
Melanitta	perspicillata		Surf Scoter	Bird		X	X	X	X	X	X		X		
Meleagris	gallopavo	mexicana	Gould's Turkey	Bird			X					X			
Melospiza	melodia		Song Sparrow	Bird		X	X	X	X	X	X		X		
Melospiza	lincolnii		Lincoln's Sparrow	Bird		X	X	X	X	X	X	X	X		
Melospiza	georgiana		Swamp Sparrow	Bird		X	X	X	X	X	X		X		
Mergus	merganser		Common Merganser	Bird		X	X	X	X	X	X	X	X		
Mergus	serrator		Red-breasted Merganser	Bird		X	X	X	X	X	X		X		

[illegible]

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Passerella	iliaca		Fox Sparrow	Bird		X	X	X	X	X	X		X		
Passerina	caerulea		Blue Grosbeak	Bird		X	X	X	X	X	X		X		
Passerina	amoena		Lazuli Bunting	Bird		X	X	X	X	X	X		X		
Passerina	cyanea		Indigo Bunting	Bird		X	X	X	X	X	X	X	X		
Passerina	versicolor		Varied Bunting	Bird			X				X		X		X
Passerina	ciris		Painted Bunting	Bird		X	X	X	X		X	X	X		
Patagioenas	fasciata		Band-tailed Pigeon	Bird		X	X	X	X	X	X		X		
Pelecanus	erythrorhynchos		American White Pelican	Bird		X	X	X	X	X	X		X		
Pelecanus	occidentalis	californicus	Brown Pelican	Bird		X	X	X	X	X	X	X	X		
Perisoreus	canadensis		Gray Jay	Bird				X				X			X
Petrochelidon	pyrrhonota		Cliff Swallow	Bird		X	X	X	X	X	X		X		
Peucedramus	taeniatus		Olive Warbler	Bird		X	X	X							X
Phainopepla	nitens		Phainopepla	Bird		X	X	X	X	X	X				X
Phalacrocorax	auritus	albociliatus	Double-crested Cormorant	Bird		X	X	X	X	X	X	X	X		
Phalaenoptilus	nuttallii		Common Poorwill	Bird		X	X	X	X	X	X		X		
Phalaropus	tricolor		Wilson's Phalarope	Bird		X	X	X	X	X	X		X		
Phalaropus	lobatus		Red-necked Phalarope	Bird		X	X	X	X	X	X		X		
Phalaropus	fulicarius		Red Phalarope	Bird		X	X	X	X	X	X	X	X		
Pheucticus	ludovicianus		Rose-breasted Grosbeak	Bird		X	X	X	X	X	X		X		
Pheucticus	melanocephalus		Black-headed Grosbeak	Bird		X	X	X	X	X	X		X		
Pica	hudsonia		Black-billed Magpie	Bird	X				X			X			
Picoides	pubescens		Downy Woodpecker	Bird		X		X	X			X			
Picoides	arizonae		Arizona Woodpecker	Bird			X					X			X

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Picoides	dorsalis		American Three-toed Woodpecker	Bird		X		X	X			X			
Pinicola	enucleator		Pine Grosbeak	Bird	X	X	X	X	X			X			X
Pipilo	chlorurus		Green-tailed Towhee	Bird		X	X	X	X	X	X	X	X		
Pipilo	aberti		Abert's Towhee	Bird		X	X			X	X				X
Pipilo	maculatus		Spotted Towhee	Bird		X	X	X	X	X	X		X		
Piranga	flava		Hepatic Tanager	Bird		X	X	X	X				X		X
Piranga	rubra		Summer Tanager	Bird		X	X	X	X	X	X		X		
Piranga	ludoviciana		Western Tanager	Bird		X	X	X	X	X	X		X		
Piranga	bidentata		Flame-colored Tanager	Bird			X					X	X		X
Plegadis	chihi		White-faced Ibis	Bird	X	X	X	X	X	X	X		X		
Pluvialis	squatarola		Black-bellied Plover	Bird		X	X	X	X	X	X		X		
Pluvialis	dominica		American Golden-Plover	Bird		X	X	X	X	X	X	X	X		
Podiceps	auritus		Horned Grebe	Bird		X	X	X	X	X	X	X	X		
Podiceps	nigricollis		Eared Grebe	Bird		X	X	X	X	X	X	X	X		
Podilymbus	podiceps		Pied-billed Grebe	Bird		X	X	X	X	X	X		X		
Poecile	sclateri		Mexican Chickadee	Bird			X					X			X
Poecile	gambeli		Mountain Chickadee	Bird		X	X	X	X	X	X		X		
Poliophtila	caerulea		Blue-gray Gnatcatcher	Bird		X	X	X	X	X	X		X		
Poliophtila	nigriceps		Black-capped Gnatcatcher	Bird	X		X					X			X
Pooecetes	gramineus		Vesper Sparrow	Bird		X	X	X	X	X	X		X		
Porzana	carolina		Sora	Bird		X	X	X	X	X	X		X		
Progne	subis	arboricola	Western Purple Martin	Bird		X	X	X	X	X	X	X	X		
Progne	subis	hesperia	Desert Purple Martin	Bird			X				X	X	X		

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Pyrocephalus	rubinus		Vermilion Flycatcher	Bird		X	X			X	X		X		X
Quiscalus	mexicanus		Great-tailed Grackle	Bird		X	X	X	X	X	X		X		
Rallus	longirostris	yumanen	Yuma Clapper Rail	Bird	X					X	X	X		X	
Rallus	limicola		Virginia Rail	Bird		X	X	X	X	X	X		X		
Recurvirostra	americana		American Avocet	Bird		X	X	X	X	X	X	X	X		
Regulus	satrapa		Golden-crowned Kinglet	Bird		X	X	X	X	X	X	X			
Regulus	calendula		Ruby-crowned Kinglet	Bird		X	X	X	X	X	X	X	X		
Rhynchopsitta	pachyrhyncha		Thick-billed Parrot	Bird	X							X		X	
Riparia	riparia		Bank Swallow	Bird		X	X	X	X	X	X		X		
Salpinctes	obsoletus		Rock Wren	Bird		X	X	X	X	X	X		X		
Sayornis	nigricans		Black Phoebe	Bird		X	X	X	X		X		X		
Sayornis	phoebe		Eastern Phoebe	Bird		X	X	X	X	X	X		X		
Sayornis	saya		Say's Phoebe	Bird		X	X	X	X	X	X		X		
Seiurus	noveboracensis		Northern Waterthrush	Bird		X	X	X	X	X	X		X		
Selasphorus	platycercus		Broad-tailed Hummingbird	Bird		X	X	X	X	X	X		X		X
Selasphorus	rufus		Rufous Hummingbird	Bird		X	X	X	X	X	X		X		X
Selasphorus	sasin		Allen's Hummingbird	Bird		X	X			X	X		X		X
Setophaga	ruticilla		American Redstart	Bird	X	X	X	X	X	X	X	X	X		
Sialia	sialis	fulva	Azure Bluebird	Bird	X		X					X			
Sialia	mexicana		Western Bluebird	Bird		X	X	X	X	X	X		X		
Sialia	currucoides		Mountain Bluebird	Bird		X	X	X	X	X	X		X		
Sphyrapicus	varius		Yellow-bellied Sapsucker	Bird		X	X	X	X	X	X	X	X		
Sphyrapicus	nuchalis		Red-naped Sapsucker	Bird		X	X	X	X	X	X	X	X		

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Spiza	americana		Dickcissel	Bird		X	X	X	X	X	X		X		
Spizella	passerina		Chipping Sparrow	Bird		X	X	X	X	X	X		X		
Spizella	pallida		Clay-colored Sparrow	Bird		X	X	X	X	X	X	X	X		
Spizella	breweri		Brewer's Sparrow	Bird		X	X	X	X	X	X		X		
Spizella	atrogularis		Black-chinned Sparrow	Bird		X	X	X	X	X	X		X		X
Stelgidopteryx	serripennis		Northern Rough-winged Swallow	Bird		X	X	X	X	X	X		X		
Stellula	calliope		Calliope Hummingbird	Bird		X	X	X	X	X	X		X		X
Sterna	caspia		Caspian Tern	Bird		X	X	X	X	X	X		X		
Sterna	hirundo		Common Tern	Bird		X	X	X	X	X	X		X		
Sterna	forsteri		Forster's Tern	Bird		X	X	X	X	X	X		X		
Sterna	antillarum		Least Tern	Bird		X	X	X	X	X	X	X	X	X	
Strix	occidentalis	lucida	Mexican Spotted Owl	Bird	X	X	X	X	X	X		X			X
Sturnella	magna		Eastern Meadowlark	Bird		X	X	X	X		X		X		
Sturnella	neglecta		Western Meadowlark	Bird		X	X	X	X	X	X		X		
Tachycineta	bicolor		Tree Swallow	Bird		X	X	X	X	X	X	X	X		
Tachycineta	thalassina		Violet-green Swallow	Bird		X	X	X	X	X	X		X		
Toxostoma	bendirei		Bendire's Thrasher	Bird		X	X		X	X	X		X		X
Toxostoma	crissale		Crissal Thrasher	Bird		X	X	X	X	X	X				X
Toxostoma	lecontei		Le Conte's Thrasher	Bird						X	X	X			X
Tringa	melanoleuca		Greater Yellowlegs	Bird		X	X	X	X	X	X		X		
Tringa	flavipes		Lesser Yellowlegs	Bird		X	X	X	X	X	X		X		
Tringa	solitaria		Solitary Sandpiper	Bird		X	X	X	X	X	X		X		
Troglodytes	aedon		House Wren	Bird		X	X	X	X	X	X		X		

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Troglodytes	troglodytes		Winter Wren	Bird		X	X	X	X	X	X	X	X		
Trogon	elegans		Elegant Trogon	Bird	X		X					X			X
Turdus	rufopalliatius		Rufous-backed Robin	Bird		X	X				X	X	X		X
Turdus	migratorius		American Robin	Bird		X	X	X	X	X	X		X		
Tyrannus	melancholicus		Tropical Kingbird	Bird	X		X				X	X			X
Tyrannus	vociferans		Cassin's Kingbird	Bird		X	X	X	X	X	X		X		
Tyrannus	crassirostris		Thick-billed Kingbird	Bird	X		X				X	X			X
Tyrannus	verticalis		Western Kingbird	Bird		X	X	X	X	X	X		X		
Tyrannus	tyrannus		Eastern Kingbird	Bird		X	X	X	X	X	X	X	X		
Tyrannus	forficatus		Scissor-tailed Flycatcher	Bird		X	X	X	X	X	X	X	X		
Vermivora	celata		Orange-crowned Warbler	Bird		X	X	X	X	X	X	X	X		
Vermivora	ruficapilla		Nashville Warbler	Bird		X	X	X	X	X	X		X		
Vermivora	virginiae		Virginia's Warbler	Bird		X	X	X	X	X	X		X		
Vermivora	luciae		Lucy's Warbler	Bird		X	X	X	X	X	X		X		X
Vireo	bellii	arizonae	Arizona Bell's Vireo	Bird	X	X	X		X				X		
Vireo	vicinior		Gray Vireo	Bird		X	X	X	X	X	X		X		
Vireo	gilvus		Warbling Vireo	Bird		X	X	X	X	X	X		X		
Vireo	olivaceus		Red-eyed Vireo	Bird		X	X	X	X	X	X	X	X		
Vireo	plumbeus		Plumbeous Vireo	Bird		X	X	X	X	X	X		X		
Vireo	cassinii		Cassin's Vireo	Bird		X	X	X	X	X	X		X		
Wilsonia	citrina		Hooded Warbler	Bird		X	X	X	X	X	X	X	X		
Wilsonia	pusilla		Wilson's Warbler	Bird		X	X	X	X	X	X		X		
Xanthocephalus	xanthocephalus		Yellow-headed Blackbird	Bird		X	X	X	X	X	X		X		

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Xema	sabini		Sabine's Gull	Bird		X	X	X	X	X	X		X			
Zenaida	asiatica		White-winged Dove	Bird		X	X	X	X	X	X		X			
Zenaida	macroura		Mourning Dove	Bird		X	X	X	X	X	X		X			
Zonotrichia	albicollis		White-throated Sparrow	Bird		X	X	X	X	X	X		X			
Zonotrichia	atricapilla		Golden-crowned Sparrow	Bird		X	X	X	X	X	X		X			
Zonotrichia	leucophrys		White-crowned Sparrow	Bird		X	X	X	X	X	X	X	X			
Zonotrichia	querula		Harris' Sparrow	Bird		X	X	X	X	X	X	X	X			
Agosia	chrysogaster		Longfin Dace	Fish	X	X	X			X	X	X		X		
Campostoma	ornatum		Mexican Stoneroller	Fish	X		X					X	X	X		
Catostomus	bernardini		Yaqui Sucker	Fish	X							X	X			
Catostomus	clarki		Desert Sucker	Fish	X	X	X	X		X	X	X	X	X		
Catostomus	discobolus		Bluehead Sucker	Fish	X			X	X			X	X			
Catostomus	discobolus	yarrowi	Zuni Bluehead Sucker	Fish	X				X			X	X			
Catostomus	insignis		Sonora Sucker	Fish	X	X	X	X			X	X	X	X		
Catostomus	latipinnis		Flannelmouth Sucker	Fish	X				X	X		X	X			
Catostomus	sp.		Little Colorado Sucker	Fish	X			X	X			X	X	X		
Cyprinella	formosa		Beautiful Shiner	Fish	X		X					X	X			
Cyprinodon	macularius		Desert Pupfish	Fish	X	X	X				X	X	X	X		
Cyprinodon	eremus		Quitobaquito Pupfish	Fish	X						X	X	X	X		
Elops	affinis		Machete	Fish	X						X	X	X			
Gila	cypha		Humpback Chub	Fish	X				X	X		X	X	X		
Gila	ditaenia		Sonora Chub	Fish	X		X					X	X			
Gila	elegans		Bonytail	Fish	X					X	X	X	X	X		

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Gila	purpurea		Yaqui Chub	Fish	X		X						X	X	X	
Gila	robusta		Roundtail Chub	Fish	X	X		X	X			X	X	X	X	X
Gila	intermedia		Gila Chub	Fish	X	X	X					X	X	X	X	
Gila	seminuda		Virgin Chub	Fish	X						X		X	X		
Gila	nigra		Headwater Chub	Fish	X	X						X	X	X	X	X
Ictalurus	pricei		Yaqui Catfish	Fish	X		X						X			
Ictalurus	punctatus		Channel Catfish	Fish		X	X	X	X	X	X					X
Lepidomeda	mollispinis	mollispinis	Virgin Spinedace	Fish	X						X		X	X		
Lepidomeda	vittata		Little Colorado Spinedace	Fish	X			X	X				X	X	X	
Lepomis	macrochirus		Bluegill	Fish		X	X	X	X	X	X					X
Meda	fulgida		Spikedace	Fish	X	X						X	X	X	X	
Micropterus	dolomieu		Smallmouth Bass	Fish		X	X	X	X	X	X					X
Micropterus	salmoides		Largemouth Bass	Fish		X	X	X	X	X	X					X
Morone	chrysops		White Bass	Fish								X				X
Morone	saxatilis		Striped Bass	Fish					X	X	X					X
Mugil	cephalus		Striped Mullet	Fish	X							X	X	X		
Oncorhynchus	clarki		Cutthroat Trout	Fish		X		X								X
Oncorhynchus	mykiss		Rainbow Trout	Fish		X	X	X	X	X	X					X
Oncorhynchus	gilae	gilae	Gila Trout	Fish	X	X		X					X	X		
Oncorhynchus	gilae	apache	Apache (Arizona) Trout	Fish	X	X	X	X	X				X	X	X	X
Plagopterus	argentissimus		Woundfin	Fish	X						X		X	X		
Poeciliopsis	occidentalis	occidentalis	Gila Topminnow	Fish	X	X	X					X	X	X		
Poeciliopsis	occidentalis	sonoriensis	Yaqui Topminnow	Fish	X		X						X	X	X	

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Pomoxis	nigromaculatus		Black Crappie	Fish		X	X	X	X	X	X	X				X
Ptychocheilus	lucius		Colorado Pikeminnow	Fish	X	X						X	X	X	X	
Pylodictis	olivaris		Flathead Catfish	Fish		X	X		X	X	X	X				X
Rhinichthys	osculus		Speckled Dace	Fish	X	X	X	X	X	X	X	X	X	X	X	
Salmo	trutta		Brown Trout	Fish		X	X	X	X			X				X
Salvelinus	fontinalis		Brook Trout	Fish		X		X								X
Stizostedion	vitreum		Walleye	Fish		X		X	X	X	X	X				X
Thymallus	arcticus		Arctic Grayling	Fish				X								X
Tiaroga	cobitis		Loach Minnow	Fish	X	X		X				X	X	X	X	
Xyrauchen	texanus		Razorback Sucker	Fish	X	X					X	X	X	X	X	
Anodonta	californiensis		California Floater	Invertebrate	X			X					X	X		
Discus	shimekii	cockerelli	Cockerell's Striate Disc (Snail)	Invertebrate	R			X					X			
Oreohelix	grahamensis		Pinaleno Mountainsnail	Invertebrate	X		X						X	X	X	
Oreohelix	yavapai	cummingsi	Yavapai Mountainsnail	Invertebrate	X	X			X				X			
Oxyloma	haydeni	kanabensis	Kanab Ambersnail	Invertebrate	X				X				X	X	X	
Oxyloma	haydeni	haydeni	Niobrara Ambersnail	Invertebrate	X				X				X	X	X	
Pyrgulopsis	bernardina		San Bernardino Springsnail	Invertebrate	X		X						X	X	X	
Pyrgulopsis	montezumensis		Montezuma Well Springsnail	Invertebrate	X	X							X	X	X	
Pyrgulopsis	bacchus		Grand Wash Springsnail	Invertebrate	X						X		X	X	X	
Pyrgulopsis	conica		Kingman Springsnail	Invertebrate	X						X		X	X	X	
Pyrgulopsis	glandulosa		Verde Rim Springsnail	Invertebrate	X	X							X	X	X	
Pyrgulopsis	morrisoni		Page Springsnail	Invertebrate	X	X							X	X	X	
Pyrgulopsis	simplex		Fossil Springsnail	Invertebrate	X	X							X	X	X	

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Pyrgulopsis	sola		Brown Springsnail	Invertebrate	X	X						X	X	X		
Pyrgulopsis	thompsoni		Huachuca Springsnail	Invertebrate	X		X					X	X	X		
Pyrgulopsis	deserta		Desert Springsnail	Invertebrate	X					X		X	X	X		
Pyrgulopsis	trivialis		Three Forks Springsnail	Invertebrate	X			X				X	X	X		
Pyrgulopsis	arizonae		Bylas Springsnail	Invertebrate	X		X					X	X	X		
Sonorella	allynsmithi		Squaw Peak Talussnail	Invertebrate	X						X	X	X	X		
Sonorella	christenseni		Clark Peak Talussnail	Invertebrate	X		X					X	X	X		
Sonorella	eremita		San Xavier Talussnail	Invertebrate	X						X	X	X	X		
Sonorella	grahamensis		Pinaleno Talussnail	Invertebrate	X		X					X	X	X		
Sonorella	imitator		Mimic Talussnail	Invertebrate	X		X					X	X	X		
Sonorella	macrophallus		Wet Canyon Talussnail	Invertebrate	X		X					X	X	X		
Sonorella	milleri		Table Top Talussnail	Invertebrate								X				
Sonorella	papagorum		Papago Talussnail	Invertebrate	X						X	X	X	X		
Tryonia	quitobaquiae		Quitobaquito Tryonia	Invertebrate	X						X	X	X	X		
Tryonia	gilae		Gila Tryonia	Invertebrate	X		X					X	X	X		
Vertigo	berryi		Rotund Vertigo	Invertebrate								X				
Ammospermophilus	leucurus	tersus	Prospect Valley White-tailed Antelope Squirrel	Mammal	X				X			X		X		
Antilocapra	americana	mexicana	Chihuahuan Pronghorn	Mammal	X	X	X					X		X	X	
Antilocapra	americana	sonoriensi	Sonoran Pronghorn	Mammal	X						X	X		X		
Antilocapra	americana	americana	American Pronghorn	Mammal		X		X	X			X		X	X	
Antrozous	pallidus		Pallid Bat	Mammal	X	X	X	X	X	X	X		X			
Baiomys	taylori		Northern Pygmy Mouse	Mammal			X					X				
Bassariscus	astutus		Ringtail	Mammal	X	X	X	X	X	X	X				X	

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Bos	bison		Bison	Mammal					X					X		X
Canis	latrans		Coyote	Mammal		X	X	X	X	X	X			X		
Canis	lupus	baileyi	Mexican Gray Wolf	Mammal	X			X					X	X	X	X
Canis	lupus	youngi	Intermountain Gray Wolf	Mammal									X		X	
Castor	canadensis		American Beaver	Mammal		X	X	X	X	X	X	X	X	X	X	X
Cervus	elaphus	nelsoni	Rocky Mountain Elk	Mammal		X		X	X							X
Chaetodipus	baileyi		Bailey's Pocket Mouse	Mammal		X	X					X			X	
Chaetodipus	hispidus		Hispid Pocket Mouse	Mammal		X	X						X	X		
Chaetodipus	intermedius		Rock Pocket Mouse	Mammal		X	X		X	X	X			X	X	
Choeronycteris	mexicana		Mexican Long-tongued Bat	Mammal	X		X		X			X	X			
Clethrionomys	gapperi		Southern Red-backed Vole	Mammal		X		X						X		
Conepatus	leuconotus	leuconotu	Hog-nosed Skunk	Mammal		X	X									X
Cynomys	ludovicianus		Black-tailed Prairie Dog	Mammal	X								X			
Cynomys	gunnisoni		Gunnison's Prairie Dog	Mammal		X		X	X				X	X		X
Didelphis	virginiana	californica	Mexican Opossum	Mammal			X					X	X			
Didelphis	virginiana	virginiana	Virginia Opossum	Mammal			X						X			
Dipodomys	ordii		Ord's Kangaroo Rat	Mammal		X	X	X	X	X				X		
Dipodomys	microps	leucotis	Houserock Valley Chisel-toothed Kangaroo Rat	Mammal	X				X				X	X		
Dipodomys	microps	celsus	A Chisel-toothed Kangaroo Rat	Mammal					X	X			X	X		
Dipodomys	spectabilis		Banner-tailed Kangaroo Rat	Mammal			X		X			X		X		
Dipodomys	spectabilis	baileyi	New Mexico Banner-tailed Kangaroo Rat	Mammal	X				X				X			
Dipodomys	deserti		Desert Kangaroo Rat	Mammal							X	X		X		
Dipodomys	merriami		Merriam's Kangaroo Rat	Mammal		X	X		X	X	X			X		

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Erethizon	dorsatum		North American Porcupine	Mammal		X	X	X	X	X	X			X		
Euderma	maculatum		Spotted Bat	Mammal	X	X	X	X	X	X	X	X				
Eumops	perotis	californicus	Greater Western Mastiff Bat	Mammal	X	X	X	X	X	X	X	X				
Eumops	underwoodi		Underwood's Mastiff Bat	Mammal	X		X				X	X				
Eutamias	minimus		Least Chipmunk	Mammal				X	X			X				
Eutamias	quadrivittatus		Colorado Chipmunk	Mammal					X			X				
Eutamias	cinereicollis		Gray-collared Chipmunk	Mammal				X				X				
Eutamias	umbrinus		Uinta Chipmunk	Mammal					X			X				
Lasiurus	blossevillii		Western Red Bat	Mammal	X	X	X	X	X	X	X	X				
Lasiurus	xanthinus		Western Yellow Bat	Mammal	X	X	X				X	X				
Leopardus	pardalis		Ocelot	Mammal	X		X					X		X		
Leptonycteris	curasoae	yerbabuenae	Lesser Long-nosed Bat	Mammal	X		X				X	X	X			
Lutra	canadensis	sonora	Southwestern River Otter	Mammal	X							X		X		
Lutra	canadensis	lataxina	Southeastern River Otter	Mammal		X		X	X		X	X	X			
Lynx	rufus		Bobcat	Mammal		X	X	X	X	X	X				X	
Macrotus	californicus		California Leaf-nosed Bat	Mammal	X	X	X		X	X	X	X		X		
Mephitis	mephitis		Striped Skunk	Mammal		X	X	X	X	X	X				X	
Mephitis	macroura		Hooded Skunk	Mammal		X	X	X			X				X	
Microtus	montanus	arizonensis	Arizona Montane Vole	Mammal	X			X				X		X		
Microtus	longicaudus		Long-tailed Vole	Mammal			X	X	X			X	X			
Microtus	longicaudus	leucophaeus	White-bellied Long-tailed Vole	Mammal	X		X					X	X	X		
Microtus	mexicanus	mogollonensis	Mogollon Vole	Mammal		X						X	X	X		
Microtus	mexicanus	hualpaiensis	Hualapai Mexican Vole	Mammal	X	X		X	X			X	X	X		

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Microtus	mexicanus	navaho	Navajo Mexican Vole	Mammal	X				X				X	X	X	
Mormoops	megalophylla		Ghost-faced Bat	Mammal	X		X						X			
Mustela	nigripes		Black-footed Ferret	Mammal	X	X							X	X	X	
Myotis	californicus		California Myotis	Mammal	X	X	X	X	X	X	X	X	X		X	
Myotis	occultus		Arizona Myotis	Mammal	X	X	X	X	X	X	X	X			X	
Nasua	nasua		White-nosed Coati	Mammal		X	X					X				X
Neotoma	albigula		Western White-throated Woodrat	Mammal		X	X	X	X	X	X	X				X
Neotoma	stephensi		Stephen's Woodrat	Mammal		X		X	X						X	
Neotoma	mexicana	mexicana	Mexican Woodrat	Mammal			X						X			
Neotoma	cinerea		Bushy-tailed Woodrat	Mammal					X				X			
Notiosorex	crawfordi		Crawford's Desert Shrew	Mammal		X	X	X	X	X	X	X			X	
Nyctinomops	macrotis		Big Free-tailed Bat	Mammal	X	X	X	X	X	X	X	X	X			
Odocoileus	hemionus	crooki	Desert Mule Deer	Mammal		X	X				X	X				X
Odocoileus	hemionus	hemionous	Rocky Mountain Mule Deer	Mammal		X		X	X	X	X					X
Odocoileus	virginianus	couesi	Coues Whitetail Deer	Mammal		X	X	X				X				X
Ondatra	zibethicus		Common Muskrat	Mammal		X		X	X	X	X	X	X	X		
Ovis	canadensis	canadensis	Rocky Mountain Bighorn Sheep	Mammal		X		X					X			X
Ovis	canadensis	nelsoni	Desert Bighorn Sheep	Mammal					X	X						X
Ovis	canadensis	mexicana	Desert Bighorn Sheep	Mammal		X	X	X				X	X		X	X
Panthera	onca		Jaguar	Mammal	X	X	X						X	X	X	X
Perognathus	apache	melanotis	Apache Pocket Mouse	Mammal			X						X		X	
Perognathus	flavus	goodpasteri	Springerville Pocket Mouse	Mammal	X	X		X	X				X		X	
Perognathus	amplus		Arizona Pocket Mouse	Mammal		X			X	X	X	X			X	

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Perognathus	amplus	cineris	Wupatki Arizona Pocket Mouse	Mammal	X				X						X	
Peromyscus	merriami		Mesquite Mouse	Mammal	X		X				X	X	X	X		
Peromyscus	maniculatus		Deer Mouse	Mammal		X	X	X	X	X	X		X			
Peromyscus	boylii		Brush Mouse	Mammal		X	X	X	X	X	X		X			
Pipistrellus	hesperus		Western Pipistrelle	Mammal	X	X	X	X	X	X	X	X				
Procyon	lotor		Raccoon	Mammal		X	X	X	X	X	X					X
Puma	concolor		Mountain Lion	Mammal		X	X	X	X	X	X		X			X
Reithrodontomys	megalotis		Western Harvest Mouse	Mammal		X	X	X	X	X	X		X			
Reithrodontomys	megalotis	megalotis	Western Harvest Mouse	Mammal	R	X	X	X	X	X	X		X			
Sciurus	aberti		Abert's Squirrel	Mammal		X	X	X	X	X	X					X
Sciurus	aberti	kaibabensis	Kaibab Squirrel	Mammal					X	X		X		X	X	
Sciurus	aberti	chuscensis	Abert's Chuska Squirrel	Mammal					X			X		X	X	
Sciurus	nayaritensis	chiricahuae	Chiricahua Fox Squirrel	Mammal	X		X					X		X	X	
Sciurus	arizonensis		Arizona Gray Squirrel	Mammal	R	X	X					X		X	X	
Sigmodon	hispidus	eremicus	Yuma Hispid Cotton Rat	Mammal	X						X	X				
Sigmodon	arizonae		Arizona Cotton Rat	Mammal		X	X				X			X		
Sigmodon	arizonae	jacksoni	Yavapai Arizona Cotton Rat	Mammal	X	X						X		X		
Sigmodon	arizonae	plenus	Colorado River Cotton Rat	Mammal							X	X		X		
Sorex	nanus		Dwarf Shrew	Mammal				X	X			X				
Sorex	palustris		Water Shrew	Mammal	X			X				X	X			
Sorex	merriami		Merriam's Shrew	Mammal				X	X			X				
Sorex	arizonae		Arizona Shrew	Mammal	R	X	X					X		X		
Spermophilus	tridecemlineatus		Thirteen-lined Ground Squirrel	Mammal				X				X	X			

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Spermophilus	spilosoma		Spotted Ground Squirrel	Mammal		X	X	X	X			X	X			
Spermophilus	tereticaudus		Round-tailed Ground Squirrel	Mammal		X	X			X	X		X		X	
Sylvilagus	nuttallii	grangeri	North Kaibab Mountain Cottontail	Mammal					X			X		X		
Sylvilagus	nuttallii	pinetis	A Southwestern Cottontail	Mammal								X		X		
Tadarida	brasiliensis		Mexican Free-tailed Bat	Mammal	X	X	X	X	X	X	X	X	X			
Tamiasciurus	hudsonicus		Red Squirrel	Mammal				X	X				X		X	
Tamiasciurus	hudsonicus	grahamens	Mt Graham Red Squirrel	Mammal	X		X					X	X	X		
Taxidea	taxus		American Badger	Mammal		X	X	X	X	X	X		X			
Tayassau	tajacu		Collared Peccary	Mammal		X	X	X	X	X	X				X	
Thomomys	umbrinus	intermedius	Southern Pocket Gopher	Mammal			X					X				
Thomomys	bottae	subsimilis	Harquahala Southern Pocket Gopher	Mammal							X	X		X		
Urocyon	cinereoargenteus		Common Gray Fox	Mammal		X	X	X	X	X	X				X	
Ursus	americanus		American Black Bear	Mammal		X	X	X	X	X				X	X	
Vulpes	vulpes		Red Fox	Mammal					X			X				
Vulpes	macrotis		Kit Fox	Mammal				X	X	X	X				X	
Zapus	hudsonius	luteus	New Mexican Jumping Mouse	Mammal	X	X		X				X		X		
Arizona	elegans	philipi	Painted Desert Glossy Snake	Reptile			X		X					X		
Aspidoscelis	xanthonota		Red-back Whiptail	Reptile			X				X	X				
Aspidoscelis	flagellicauda		Gila Spotted Whiptail	Reptile		X	X	X			X			X		
Aspidoscelis	arizonae		Arizona Striped Whiptail	Reptile			X					X	X	X		
Aspidoscelis	pai		Pai Striped Whiptail	Reptile		X		X	X		X	X		X		
Aspidoscelis	sonorae		Sonoran Spotted Whiptail	Reptile			X					X				
Aspidoscelis	stictogrammus		Giant Spotted Whiptail	Reptile	X		X				X	X				

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Charina	trivirgata	gracia	Desert Rosy Boa	Reptile	X	X					X	X	X			X
Charina	trivirgata	trivirgata	Mexican Rosy Boa	Reptile	X						X	X	X			X
Chionactis	occipitalis	occipitalis	Mojave Shovel-nosed Snake	Reptile							X		X			
Chionactis	occipitalis	klauberi	Tucson Shovel-nosed Snake	Reptile	X						X	X	X		X	
Chionactis	palarostris	organica	Organ Pipe Shovel-nosed Snake	Reptile	X						X	X	X			
Chrysemys	picta	bellii	Western Painted Turtle	Reptile				X	X		X	X	X			
Coleonyx	variegatus	utahensis	Utah Banded Gecko	Reptile					X	X		X	X			
Coluber	constrictor	mormon	Western Yellow-bellied Racer	Reptile				X				X				
Crotalus	atrox		Western Diamond-backed Rattlesnake	Reptile		X	X	X	X	X	X					X
Crotalus	cerastes	cercombombus	Sonoran Sidewinder	Reptile							X					X
Crotalus	cerastes	cerastes	Mojave Sidewider	Reptile							X	X				X
Crotalus	cerastes	laterorepens	Colorado Desert Sidewinder	Reptile							X					X
Crotalus	lepidus	klauberi	Banded Rock Rattlesnake	Reptile	X		X									X
Crotalus	mitchellii	pyrrhus	Southwestern Speckled Rattlesnake	Reptile		X			X	X	X					X
Crotalus	molossus	molossus	Northern Black-tailed Rattlesnake	Reptile		X	X	X	X		X					X
Crotalus	oreganos	abyssus	Grand Canyon Rattlesnake	Reptile					X						X	X
Crotalus	oreganus	cereberus	Arizona Black Rattlesnake	Reptile		X	X	X	X		X				X	
Crotalus	pricei	pricei	Western Twin-spotted Rattlesnake	Reptile			X					X	X			X
Crotalus	scutulatus	scutulatus	Northern Mohave Rattlesnake	Reptile		X	X			X	X					X
Crotalus	tigris		Tiger Rattlesnake	Reptile		X	X				X					X
Crotalus	viridis	nuntius	Hopi Rattlesnake	Reptile					X			X			X	
Crotalus	viridis	viridis	Green Prairie Rattlesnake	Reptile			X	X				X				

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Crotalus	willardi	obscurus	New Mexico Ridge-nosed Rattlesnake	Reptile	X		X						X	X		X
Crotalus	willardi	willardi	Arizona Ridge-nosed Rattlesnake	Reptile	X		X						X			X
Crotalus	oreganus	concolor	Midget Faded Rattlesnake	Reptile					X				X			X
Eumeces	callicephalus		Mountain Skink	Reptile			X						X			
Eumeces	gilberti	arizonensis	Arizona Skink	Reptile	X							X	X		X	
Eumeces	gilberti	rubricaudat	Western Red-tailed Skink	Reptile		X					X	X			X	
Gopherus	agassizii	(Mohave Population)	Mohave Desert Tortoise	Reptile	X				X	X			X			
Gopherus	agassizii	(Sonoran Population)	Sonoran Desert Tortoise	Reptile	X	X	X				X	X	X			
Gyalopion	quadrangulare		Thornscrub Hook-nosed Snake	Reptile			X						X			
Heloderma	suspectum	cinctum	Banded Gila Monster	Reptile	X	X					X	X			X	
Holbrookia	elegans	thermophila	Sonoran (elegant) Earless Lizard	Reptile			X						X			
Holbrookia	maculata	pulchra	Huachuca Earless Lizard	Reptile			X								X	
Hypsiglena	torquata	deserticola	Desert Nightsnake	Reptile					X			X	X			
Hypsiglena	torquata	loreala	Mesa Verde Nightsnake	Reptile					X				X			
Kinosternon	arizonense		Arizona Mud Turtle	Reptile			X					X	X	X		
Kinosternon	flavescens		Yellow Mud Turtle	Reptile			X						X			
Kinosternon	sonoriense	longifemorale	Sonoyta Mud Turtle	Reptile	X							X	X			
Kinosternon	sonoriense	sonoriense	Sonora Mud Turtle	Reptile		X	X					X	X	X		
Lampropeltis	getula	nigrita	Western Black Kingsnake	Reptile	X		X						X			
Lampropeltis	pyromelana	infralabialis	Utah Mountain Kingsnake	Reptile	X				X	X			X			
Lampropeltis	pyromelana	pyromelan	Arizona Mountain Kingsnake	Reptile		X	X	X							X	
Lampropeltis	triangulum	taylori	Utah Milksnake	Reptile	X				X				X			

Appendix A. Distribution and status of CWCS priority species in Arizona in 2005. Heritage Database Management System (HDMS) abstracts available (X = on www.azgfd.gov ; R = restricted access due to specific locality data).																
Priority Wildlife					HDMS Abstract	Presence in Ecoregion (X=present)						Status (X=priority)				
Genus	Species	Subspecies	Common	Taxon		North Highlands	South Apache Highlands	Apache Mountains	AZ-NM Plateau	Colorado Plateau	Mohave Desert	Sonoran Desert	Vulnerable	Focal	Responsible	Economic
Lampropeltis	triangulum	celaeonops	New Mexico Milksnake	Reptile	X			X					X			
Leptotyphlops	dissectus		New Mexico Threadsnake	Reptile				X					X			
Leptotyphlops	humilis	utahensis	Utah Threadsnake	Reptile					X	X			X			
Masticophis	bilineatus	lineolatus	Ajo Mountain Whipsnake	Reptile							X		X			
Masticophis	flagellum	lineatulus	Lined Coachwhip	Reptile				X					X			
Micruroides	euryxanthus	euryxanthus	Arizona (Sonoran) Coralsnake	Reptile				X			X					X
Oxybelis	aeneus		Brown Vinesnake	Reptile	X			X					X			
Phrynosoma	mcallii		Flat-tailed Horned Lizard	Reptile	X						X		X			
Phrynosoma	hernandesi	hernandesi	Hernandez's (Greater) Short-horned Lizard	Reptile		X	X	X	X				X			
Salvadora	grahamiae		Eastern Patch-nosed Snake	Reptile		X	X	X					X			
Sauromalus	ater		Common Chuckwalla	Reptile	X				X	X	X					X
Sceloporus	virgatus		Striped Plateau Lizard	Reptile				X					X			
Sceloporus	slevini		Slevin's Bunchgrass Lizard	Reptile				X					X	X		
Senticolis	triaspis	intermedia	Northern Green Ratsnake	Reptile				X					X			X
Sistrurus	catenatus	edwardsii	Desert Massasauga	Reptile	X			X					X			X
Tantilla	nigriceps		Plains Black-headed Snake	Reptile				X			X		X			
Tantilla	wilcoxi		Chihuahuan Black-headed Snake	Reptile				X					X			
Tantilla	yaquia		Yaqui Black-headed Snake	Reptile				X					X			
Tantilla	hobartsmithi		Smith's Black-headed Snake	Reptile		X	X		X	X	X		X			
Terrapene	ornata	luteola	Desert Box Turtle	Reptile				X					X			
Thamnophis	cyrtopsis	cyrtopsis	Western Black-necked Gartersnake	Reptile		X	X	X	X		X		X			
Thamnophis	eques	megalops	Northern Mexican Gartersnake	Reptile		X	X	X			X		X			

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Priority Wildlife					HDMS Abstract	Presence in Ecoregion (X=present)							Status (X=priority)			
Genus	Species	Subspecies	Common	Taxon		North Highlands	South Apache Highlands	Apache Mountains	AZ-NM	Colorado Plateau	Mohave Desert	Sonoran Desert	Vulnerable	Focal	Responsible	Economic
Thamnophis	rufipunctatus		Narrow-headed Gartersnake	Reptile	X	X		X					X		X	
Uma	rufopunctata		Yuman Desert Fringe-toed Lizard	Reptile	X							X	X			
Uma	scoparia		Mojave Fringe-toed Lizard	Reptile	X						X	X	X			
Xantusia	vigilis	vigilis	Yucca Night Lizard	Reptile						X	X	X	X			
Xantusia	arizonae		Arizona Night Lizard	Reptile	X	X						X	X		X	
Xantusia	bezyi		Bezy's Night Lizard	Reptile		X						X	X		X	

Appendix B. Species found throughout Arizona for which vulnerability status could not be evaluated due to lack of information ('Data Sufficiency' category).

Genus	Species	Subspecies	Common Name	Taxon	AHN	AHS	AZNM	CP	MD	SD
Accipiter	striatus		Sharp-shinned Hawk	Bird	X	X	X	X	X	X
Actitis	macularius		Spotted Sandpiper	Bird	X	X	X	X	X	X
Aegolius	acadicus		Northern Saw-whet Owl	Bird	X	X	X	X	X	X
Aeronautes	saxatalis		White-throated Swift	Bird	X	X	X	X	X	X
Agelaius	phoeniceus		Red-winged Blackbird	Bird	X	X	X	X	X	X
Anas	crecca		Green-winged Teal	Bird	X	X	X	X	X	X
Anas	cyanoptera		Cinnamon Teal	Bird	X	X	X	X	X	X
Anas	penelope		Eurasian Wigeon	Bird	X	X	X	X	X	X
Anas	platyrhynchos		Mallard	Bird	X	X	X	X	X	X
Anas	strepera		Gadwall	Bird	X	X	X	X	X	X
Anser	albifrons		Greater White-fronted Goose	Bird	X	X	X	X	X	X
Asio	flammeus		Short-eared Owl	Bird	X	X	X	X	X	X
Aythya	affinis		Lesser Scaup	Bird	X	X	X	X	X	X
Aythya	americana		Redhead	Bird	X	X	X	X	X	X
Aythya	collaris		Ring-necked Duck	Bird	X	X	X	X	X	X
Bombycilla	cedrorum		Cedar Waxwing	Bird	X	X	X	X	X	X
Bucephala	albeola		Bufflehead	Bird	X	X	X	X	X	X
Bucephala	clangula		Common Goldeneye	Bird	X	X	X	X	X	X
Buteo	lagopus		Rough-legged Hawk	Bird	X	X	X	X	X	X
Calamospiza	melanocorys		Lark Bunting	Bird	X	X	X	X		X
Calcarius	lapponicus		Lapland Longspur	Bird	X	X	X	X	X	X
Calcarius	ornatus		Chestnut-collared Longspur	Bird	X	X	X	X		X
Calidris	alba		Sanderling	Bird	X	X	X	X	X	X
Calidris	alpina		Dunlin	Bird	X	X	X	X	X	X
Calidris	bairdii		Baird's Sandpiper	Bird	X	X	X	X	X	X
Calidris	himantopus		Stilt Sandpiper	Bird	X	X	X	X	X	X
Calidris	mauri		Western Sandpiper	Bird	X	X	X	X	X	X
Calidris	melanotos		Pectoral Sandpiper	Bird	X	X	X	X	X	X
Calidris	minutilla		Least Sandpiper	Bird	X	X	X	X	X	X
Calidris	pusilla		Semipalmated Sandpiper	Bird	X	X	X	X	X	X
Caprimulgus	vociferus		Whip-poor-will	Bird	X	X	X	X		
Carduelis	tristis		American Goldfinch	Bird	X	X	X	X	X	X
Catoptrophorus	semipalmatus		Willet	Bird	X	X	X	X	X	X
Chaetura	vauxi		Vaux's Swift	Bird	X	X	X	X	X	X
Charadrius	semipalmatus		Semipalmated Plover	Bird	X	X	X	X	X	X
Chlidonias	niger		Black Tern	Bird	X	X	X	X	X	X
Columbina	passerina		Common Ground-Dove	Bird		X				X
Contopus	pertinax		Greater Pewee	Bird	X	X	X			X
Contopus	sordidulus		Western Wood-Pewee	Bird	X	X	X	X	X	X
Corvus	brachyrhynchos		American Crow	Bird	X	X	X	X	X	X

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Genus	Species	Subspecies	Common Name	Taxon	AHN	AHS	AZNM	CP	MD	SD
Cyanocitta	stelleri		Steller's Jay	Bird	X	X	X	X	X	X
Cygnus	columbianus		Tundra Swan	Bird	X	X	X	X	X	X
Dendroica	occidentalis		Hermit Warbler	Bird	X	X	X	X	X	X
Dendroica	pensylvanica		Chestnut-sided Warbler	Bird	X	X	X	X	X	X
Dendroica	townsendi		Townsend's Warbler	Bird	X	X	X	X	X	X
Egretta	caerulea		Little Blue Heron	Bird	X	X	X	X	X	X
Empidonax	difficilis		Pacific-slope Flycatcher	Bird	X	X	X	X	X	X
Empidonax	wrightii		Gray Flycatcher	Bird	X	X	X	X	X	X
Euphagus	cyanocephalus		Brewer's Blackbird	Bird	X	X	X	X	X	X
Falco	columbarius		Merlin	Bird	X	X	X	X	X	X
Falco	sparverius		American Kestrel	Bird	X	X	X	X	X	X
Gavia	immer		Common Loon	Bird	X	X	X	X	X	X
Gavia	pacifica		Pacific Loon	Bird	X	X	X	X	X	X
Glauclidium	gnoma	gnoma	Northern Pygmy-Owl	Bird	X	X	X	X		X
Hirundo	rustica		Barn Swallow	Bird	X	X	X	X	X	X
Lanius	excubitor		Northern Shrike	Bird	X	X	X	X		
Larus	argentatus		Herring Gull	Bird	X	X	X	X	X	X
Larus	californicus		California Gull	Bird	X	X	X	X	X	X
Larus	delawarensis		Ring-billed Gull	Bird	X	X	X	X	X	X
Larus	philadelphia		Bonaparte's Gull	Bird	X	X	X	X	X	X
Larus	pipixcan		Franklin's Gull	Bird	X	X	X	X	X	X
Limnodromus	griseus		Short-billed Dowitcher	Bird	X	X	X	X	X	X
Limnodromus	scolopaceus		Long-billed Dowitcher	Bird	X	X	X	X	X	X
Limosa	fedoa		Marbled Godwit	Bird	X	X	X	X	X	X
Lophodytes	eucullatus		Hooded Merganser	Bird	X	X	X	X	X	X
Melanitta	perspicillata		Surf Scoter	Bird	X	X	X	X	X	X
Melospiza	georgiana		Swamp Sparrow	Bird	X	X	X	X	X	X
Mergus	serrator		Red-breasted Merganser	Bird	X	X	X	X	X	X
Mniotilta	varia		Black-and-white Warbler	Bird	X	X	X	X	X	X
Numenius	americanus		Long-billed Curlew	Bird	X	X	X	X	X	X
Passerella	iliaca		Fox Sparrow	Bird	X	X	X	X	X	X
Pelecanus	erythrorhynchos		American White Pelican	Bird	X	X	X	X	X	X
Phalacrocorax	brasilianus		Neotropic Cormorant	Bird	X	X				X
Phalaropus	lobatus		Red-necked Phalarope	Bird	X	X	X	X	X	X
Phalaropus	tricolor		Wilson's Phalarope	Bird	X	X	X	X	X	X
Pheucticus	ludovicianus		Rose-breasted Grosbeak	Bird	X	X	X	X	X	X
Plegadis	chihi		White-faced Ibis	Bird	X	X	X	X	X	X
Pluvialis	squatarola		Black-bellied Plover	Bird	X	X	X	X	X	X
Rallus	limicola		Virginia Rail	Bird	X	X	X	X	X	X
Riparia	riparia		Bank Swallow	Bird	X	X	X	X	X	X

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Genus	Species	Subspecies	Common Name	Taxon	AHN	AHS	AZNM	CP	MD	SD
Sayornis	phoebe		Eastern Phoebe	Bird	X	X	X	X	X	X
Seiurus	noveboracensis		Northern Waterthrush	Bird	X	X	X	X	X	X
Selasphorus	rufus		Rufous Hummingbird	Bird	X	X	X	X	X	X
Selasphorus	sasin		Allen's Hummingbird	Bird	X	X			X	X
Spiza	americana		Dickcissel	Bird	X	X	X	X	X	X
Stellula	calliope		Calliope Hummingbird	Bird	X	X	X	X	X	X
Sterna	caspia		Caspian Tern	Bird	X	X	X	X	X	X
Sterna	forsteri		Forster's Tern	Bird	X	X	X	X	X	X
Sterna	hirundo		Common Tern	Bird	X	X	X	X	X	X
Toxostoma	bendirei		Bendire's Thrasher	Bird	X	X		X	X	X
Tringa	flavipes		Lesser Yellowlegs	Bird	X	X	X	X	X	X
Tringa	melanoleuca		Greater Yellowlegs	Bird	X	X	X	X	X	X
Tringa	solitaria		Solitary Sandpiper	Bird	X	X	X	X	X	X
Vermivora	ruficapilla		Nashville Warbler	Bird	X	X	X	X	X	X
Vireo	cassinii		Cassin's Vireo	Bird	X	X	X	X	X	X
Wilsonia	pusilla		Wilson's Warbler	Bird	X	X	X	X	X	X
Xema	sabini		Sabine's Gull	Bird	X	X	X	X	X	X
Zonotrichia	albicollis		White-throated Sparrow	Bird	X	X	X	X	X	X
Zonotrichia	atricapilla		Golden-crowned Sparrow	Bird	X	X	X	X	X	X
Artemia	franciscana		San Francisco Brine Shrimp	Invertebrate						
Biomphalaria	havanensis		Ghost Rams-horn Snail	Invertebrate	X	X	X	X	X	X
Branchinecta	coloradensis		Colorado Fairy Shrimp	Invertebrate						
Branchinecta	kaibabensis		Kaibab Fairy Shrimp	Invertebrate						
Branchinecta	lindahli		Versitle Fairy Shrimp	Invertebrate						
Branchinecta	packardi		Rock Pool Fairy Shrimp	Invertebrate						
Cipangopaludina	chinensis		Chinese Mysterysnail	Invertebrate		X			X	X
Cyzicus	mexicanus		Mexican Clam Shrimp	Invertebrate						
Cyzicus	setosa		Bristletail Clam Shrimp	Invertebrate						
Discus	shimekii		Striate Disc (a snail)	Invertebrate			X			
Drepanotrema	aeruginosum		Rusty Rams-horn Snail	Invertebrate		X				X
Eocyclus	digueti		Straightbacked Clam Shrimp	Invertebrate						
Eubbranchipus	bundyi		Knobbedlip Fairy Shrimp	Invertebrate						
Eubbranchipus	serratus		Ethologist Fairy Shrimp	Invertebrate						
Eulimnadia	antlei		Fuzzy Cyst Clam Shrimp	Invertebrate						
Eulimnadia	cylindrova		Cylindrical Cyst Clam Shrimp	Invertebrate						
Eulimnadia	texana		Texan Clam Shrimp	Invertebrate						
Ferrissia	fragilis		Fragile Ancyloid	Invertebrate						
Ferrissia	rivularis		Creeping Ancyloid	Invertebrate						
Fossaria	dalli		Dusky Fossaria	Invertebrate	X	X	X	X		
Fossaria	modicella		Rock Fossaria	Invertebrate	X	X	X	X		

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Genus	Species	Subspecies	Common Name	Taxon	AHN	AHS	AZNM	CP	MD	SD
Fossaria	obrussa		Golden Fossaria	Invertebrate	X	X	X	X		
Fossaria	parva		Pygmy Fossaria	Invertebrate	X	X	X	X		
Fossaria	techella		A Freshwater Snail	Invertebrate	X	X	X	X		
Gyraulus	circumstriatus		Disc Gyro	Invertebrate						
Gyraulus	parvus		Ash Gyro	Invertebrate			X	X		
Helisoma	anceps		Two-ridge Rams-horn Snail	Invertebrate						
Helix	aspersa		Brown Gardensnail	Invertebrate	X	X	X	X	X	X
Leptestheria	compleximanus		Spineynose Clam Shrimp	Invertebrate						
Lynceus	brachyurus		Holarctic Clam Shrimp	Invertebrate						
Lynceus	brevifrons		Short Finger Clam Shrimp	Invertebrate						
Melanoidea	tuberculatus		Red-rim Melania	Invertebrate					X	X
Oreohelix	yavapai		Yavapai Mountainsnail	Invertebrate	X			X		
Otala	lactea		Milk Snail	Invertebrate	X	X	X	X	X	X
Physella	gyrina		Tadpole Physa	Invertebrate						
Physella	humerosa		Corkscrew Physa	Invertebrate						
Physella	osculans		Cayuse Physa	Invertebrate						
Physella	virgata		Protean Physa	Invertebrate	X		X	X		X
Planorbella	tenuis		Mexican Rams-horn Snail	Invertebrate						
Procambarus	clarkii		Red Swamp Crawfish	Invertebrate	X	X	X	X	X	X
Promenetus	exacuus		Sharp Sprite (a planorbid snail)	Invertebrate						
Pseudosuccinea	columella		Mimic Lymnaea	Invertebrate						X
Pyganodon	grandis		Giant Floater (a clam)	Invertebrate						
Radix	auricularia		Big-eared Radix	Invertebrate	X	X	X	X		X
Streptocephalus	dorotheae		New Mexico Fairy Shrimp	Invertebrate						
Streptocephalus	mackini		Chihuahuan Desert Fairy Shrimp	Invertebrate						
Streptocephalus	sealii		Spinytail Fairy Shrimp	Invertebrate						
Streptocephalus	texasus		Greater Plains Fairy Shrimp	Invertebrate						
Thamnocephalus	mexicanus		Mexican Beavertail Fairy Shrimp	Invertebrate						
Thamnocephalus	platyurus		Beavertail Fairy Shrimp	Invertebrate						
Triops	longicaudatus		Longtail Tadpole Shrimp	Invertebrate						
Triops	newberryi		Desert Tadpole Shrimp	Invertebrate						
Vitrina	pellucida		Western Glass Snail	Invertebrate	X		X	X		
Vitrina	pellucida	alaskana	Western Glass Snail	Invertebrate	X		X	X		
Ammospermophilus	leucurus		White-tailed Antelope Squirrel	Mammal			X	X	X	
Antrozous	pallidus		Pallid Bat	Mammal	X	X	X	X	X	X
Chaetodipus	formosus		Long-tailed Pocket Mouse	Mammal				X	X	
Clethrionomys	gapperi		Southern Red-backed Vole	Mammal	X		X			
Conepatus	leuconotus		White-backed Hog-nosed Skunk	Mammal			X		X	X
Conepatus	leuconotus	leuconotu	Hog-nosed Skunk	Mammal	X	X				
Corynorhinus	townsendii	pallascen	Pale Townsend's Big-eared Bat	Mammal	X	X	X	X	X	X

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Genus	Species	Subspecies	Common Name	Taxon	AHN	AHS	AZNM	CP	MD	SD
Dipodomys	deserti		Desert Kangaroo Rat	Mammal					X	X
Idionycteris	phyllostis		Allen's Big-eared Bat	Mammal	X	X	X	X	X	X
Lasionycteris	noctivagans		Silver-haired Bat	Mammal	X	X	X	X	X	
Lasiurus	cinereus		Hoary Bat	Mammal	X	X	X	X	X	X
Lynx	rufus		Bobcat	Mammal	X	X	X	X	X	X
Mustela	frenata		Long-tailed Weasel	Mammal		X	X	X		
Myotis	auriculus		Southwestern Myotis	Mammal	X	X	X		X	X
Myotis	evotis		Long-eared Myotis	Mammal	X		X	X		
Myotis	occultus		Arizona Myotis	Mammal	X	X	X	X	X	X
Neotoma	lepida		Desert Woodrat	Mammal				X	X	X
Neotoma	lepida	devia	Arizona Woodrat	Mammal				X	X	X
Neotoma	mexicana		Mexican Woodrat	Mammal	X	X	X	X		
Neotoma	stephensi		Stephen's Woodrat	Mammal	X		X	X		
Notiosorex	cockrumi		Cockrum's Shrew	Mammal		X				
Nyctinomops	femorosaccus		Pocketed Free-tailed Bat	Mammal	X	X			X	X
Onychomys	leucogaster		Northern Grasshopper Mouse	Mammal	X	X	X	X		
Onychomys	torridus		Southern Grasshopper Mouse	Mammal	X	X		X	X	X
Perognathus	amplus		Arizona Pocket Mouse	Mammal	X			X	X	X
Perognathus	amplus	amplus	Yavapai Arizona Pocket Mouse	Mammal	X					X
Perognathus	amplus	cineris	Wupatki Arizona Pocket Mouse	Mammal				X		
Perognathus	apache		Apache Pocket Mouse	Mammal		X	X	X		
Perognathus	flavus		Silky Pocket Mouse	Mammal	X	X	X	X		X
Perognathus	longimembris		Little Pocket Mouse	Mammal				X	X	X
Perognathus	parvus		Great Basin Pocket Mouse	Mammal				X		
Peromyscus	boylii		Brush Mouse	Mammal	X	X	X	X	X	X
Peromyscus	crinitus		Canyon Mouse	Mammal				X	X	X
Peromyscus	difficilis		Rock Mouse	Mammal		X	X	X		
Peromyscus	eremicus		Cactus Mouse	Mammal	X	X		X	X	X
Peromyscus	eremicus	eremicus	Cactus Mouse	Mammal	X	X		X	X	X
Peromyscus	leucopus		White-footed Mouse	Mammal	X	X	X	X		X
Peromyscus	truei		Pinon Mouse	Mammal	X		X	X	X	
Reithrodontomys	fulvescens		Fulvous Harvest Mouse	Mammal		X				X
Reithrodontomys	megalotis		Western Harvest Mouse	Mammal	X	X	X	X	X	X
Reithrodontomys	megalotis	megalotis	Western Harvest Mouse	Mammal	X	X	X	X	X	X
Reithrodontomys	montanus		Plains Harvest Mouse	Mammal	X	X				X
Sigmodon	arizonae		Arizona Cotton Rat	Mammal	X	X				X
Sigmodon	fulviventer		Tawny-bellied Cotton Rat	Mammal		X				
Sigmodon	hispidus		Hispid Cotton Rat	Mammal		X				X
Sigmodon	ochrognathus		Yellow-nosed Cotton Rat	Mammal		X				X
Sorex	monticolus		Dusky Shrew	Mammal	X	X	X	X		

Appendix B. Species found throughout Arizona for which vulnerability status could not be evaluated due to lack of information ('Data Sufficiency' category).

Genus	Species	Subspecies	Common Name	Taxon	AHN	AHS	AZNM	CP	MD	SD
Spermophilus	lateralis		Golden-mantled Ground Squirrel	Mammal			X	X		
Spermophilus	tereticaudus		Round-tailed Ground Squirrel	Mammal	X	X			X	X
Spermophilus	tridecemlineatus	monticola	White Mountains Ground Squirrel	Mammal			X			
Spilogale	gracilis		Western Spotted Skunk	Mammal	X	X	X	X	X	X
Taxidea	taxus		American Badger	Mammal	X	X	X	X	X	X
Thomomys	bottae		Botta's Pocket Gopher	Mammal	X	X	X	X	X	X
Thomomys	bottae	desertorum	Pocket Gopher	Mammal	X				X	
Thomomys	bottae	mearnsi	Mearns' Southern Pocket Gopher	Mammal		X				
Thomomys	talpoides		Northern Pocket Gopher	Mammal				X		
Vulpes	macrotis		Kit Fox	Mammal			X	X	X	X
Aspidoscelis	exsanguis		Chihuahuan Spotted Whiptail	Reptile		X				
Crotalus	oreganus	lutosus	Great Basin Rattlesnake	Reptile				X	X	
Crotalus	oreganus	concolor	Midget Faded Rattlesnake	Reptile				X		
Eumeces	gilberti	rubicaudat	Western Red-tailed Skink	Reptile	X				X	X
Gyalopion	canum		Chihuahuan Hook-nosed Snake	Reptile	X	X				
Holbrookia	maculata	approximans	Speckled Earless Lizard	Reptile	X		X	X		
Holbrookia	maculata	pulchra	Huachuca Earless Lizard	Reptile		X				
Leptotyphlops	humilis	cahuilae	Desert Threadsnake	Reptile						X
Leptotyphlops	humilis	utahensis	Utah Threadsnake	Reptile				X	X	
Leptotyphlops	humilis	segregus	Trans-Pecos Threadsnake	Reptile		X				
Masticophis	flagellum	cingulum	Sonoran Coachwhip	Reptile		X				
Phrynosoma	cornutum		Texas Horned Lizard	Reptile		X				X
Phrynosoma	solare		Regal Horned Lizard	Reptile	X	X				X
Phyllorhynchus	browni		Saddled Leaf-nosed Snake	Reptile						X
Phyllorhynchus	decurtatus		Spotted Leaf-nosed Snake	Reptile					X	X